THE PROGRESSIVE FARMER
AND FARM WOMAN

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Papers and Magazines We Recommend

TO GIVE you a full, fair, impartial record of all the world's news—in other words, if you wish to be well informed about what the world is doing—take the Literary Digest, New York City, weekly, $4 a year, or the weekly Springfield Republican, Mass. (independent in politics but with Democratic leanings), $1.50 a year. A vigorous and progressive independent weekly is the New Republic, N. Y., $5 a year; a strong and conservative weekly with Republican leanings is the New York Outlook, also $5.

Almost as good as dailies for the average farmer are the Tri-Weekly Atlanta Constitution ($1); Thrice-a-week Atlanta Journal ($1).

Among news monthlies we would recommend the Review of Reviews ($4), New York City, ably edited, independent but with Republican leanings.

Among the general monthly magazines, The American, New York ($2.50); Harper's, New York ($4); Century, New York ($5); and the Atlantic Monthly, Boston ($4), deserve especial praise. They publish about the best work of living American thinkers and story writers.

Not only every boy and girl, but the whole family as well, should read the weekly Youth's Companion, Boston, Mass. ($2.50 a year). Two other excellent publications for boys (both monthly) are The American Boy, Detroit, Mich., ($2 a year) and Boys' Life, organ of the Boy Scouts, 200 Fifth Ave., N. Y., ($2).

Women's magazines find as leaders: Good Housekeeping ($3); the Woman's Home Companion ($1.50); Pictorial Review ($1.50); Modern Priscilla ($2); McCall's ($1); and People's Home Journal ($1).

Stock farmers will of course want the Breeders' Gazette ($1), and dairymen, Hoard's Dairyman ($1), both weekly. Hunters and nature lovers will like Forest and Stream ($2.50).

Persons interested in beautifying their homes and home grounds will find The House Beautiful, Boston ($3), of great value and interest.

Any of these publications may be ordered through The Progressive Farmer at prices mentioned.

Traveling Libraries, Etc., for North Carolina Readers

THE North Carolina State Library Commission, Raleigh, N. C., offers to lend collections of books or individual books, to North Carolina farmers, their families, schools, or communities, as follows:

I. A Traveling Library

EACH traveling library contains 40 volumes, of which one-third are children's books. The remainder includes good stories and popular non-fiction. The traveling libraries for schools are made up entirely of childrens books arranged according to grade.

People in any North Carolina community may get a traveling library, keep it three months, and then get another. The only expense to the community is the cost of transportation, and if that exceeds $1, the Library Commission pays the excess.

II. You Can Also Borrow Books on Special Subjects

BOOKS on many different subjects are also lent to residents of North Carolina by the Library Commission. The collection of books on agriculture is very complete and includes material on subjects most useful to farmers. Write the commission for books on **any subject that interests you.**

The only cost to the borrower for this service is that of the postage which can be refunded to the Library Commission when the books are returned.

III. Free Debate Libraries and Special Help for Schools

DEBATE libraries are lent to schools and debating societies. Material on 80 debate subjects is available. Libraries may be kept three weeks. No charge is made for the loan of libraries, but borrowers pay the postage both from and to Raleigh.

The Library Commission has also special collections of declamations, recitations, school plays, and material for the celebration of holidays. Books on educational topics can be borrowed by teachers and parents.

Address all applications for books to North Carolina Library Commission, Raleigh, N. C.

How to Get An Agricultural or Home Economics Teacher

IF there is a high school near you without a whole-time agricultural or home economics teacher, you can get such a teacher, *the government paying half or more of the salary.* For full information, write the director of vocational education in your state:

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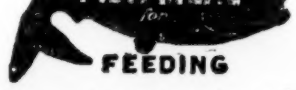

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THE PROGRESSIVE FARMER
AND FARM WOMAN

For North Carolina, South Carolina, and Virginia Farmers

CAROLINAS-VIRGINIA EDITION, FEBRUARY 16, 1924

Published Every Saturday—52 Issues a Year

The Busy Farmer's Quick Reference

1924	SUN	MON	TUE	WED	THU	FRI	SAT
JAN			1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31		
FEB						1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	
MAR							1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31					
APR			1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30			
MAY					1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31
JUN	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30					

1924	SUN	MON	TUE	WED	THU	FRI	SAT
JUL			1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31		
AUG						1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31						
SEP		1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30				
OCT				1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	
NOV							1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30						
DEC	1	2	3	4	5	6	
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31			

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Dates of the Moon's Phases, 1924

	New Moon	First Quarter	Full Moon	Last Quarter
January	6	13	21	29
February	4	12	20	27
March	5	13	20	27
April	4	12	19	25
May	3	11	18	25
June	2	10	16	23
July	2-31	9	16	23
August	30	7	14	22
September	28	6	13	20
October	28	5	12	20
November	26	3	11	19
December	25	3	11	19

Estimating Corn or Other Grain in Crib or Bin

FIRST get the cubic content of crib or bin in inches or cubic content of space occupied by grain if crib is not full. The cubic content is obtained by multiplying inside length by width, then multiply that product by height of crib or average depth of corn. Average width must be estimated if crib has sloped sides.

Having cubic content, proceed as follows to obtain number of bushels of grain:

For unshucked corn—divide by 5,000.

For shucked corn—divide by 4,300.

For shelled corn, wheat, oats, barley, rye and buckwheat—divide by 2,150.

Remember that the dimensions of the bin or crib for height, width and length must be in **inches** and not in feet or feet and inches.

Temperatures to Remember

	Fahrenheit
Water freezes	32
Danger of frost	39
Refrigerator	45 to 55
Ripening of cream	65 to 70
Room, people working	55
Room, people not exercising	68 to 70
Of body, mouth	98.6
Incubator	103
Water boils at	212
Pasteurizing milk	145
For syrup, 11 pounds to gallon	219

Practical Measurements of Land

TO find the number of acres in any rectangular piece of land multiply the length by the breadth in rods and divide by 160 (the number of square rods in an acre).

In a triangular field (one with three sides) when the length of one side and the perpendicular to that side from the opposite angle is shown, or can be measured, divide one-half the product of the side and perpendicular by 160. Hence the area of a three-sided field with one right angle equals one-half the product of the two short sides.

When all three sides are known, from half the sum of their lengths, subtract each side separately, multiply the remainders and half the sum of the sides together; the square root of the product divided by 160 will be the area in acres.

When the field is in the shape of a trapezoid (a four-sided figure with one pair of sides parallel) divide one-half the product of the sum of the parallel sides and the perpendicular between them by 160.

To find the area of a field with any number of straight sides, divide it by straight lines—into convenient parts—three or four sides—and the area of each of them by the above methods and add these areas together.

NOTE—If the measurements are taken in yards instead of rods as above, then the result in each case should be divided by 4,840 (the number of square yards in an acre).

Weights and Measures

Cubic Measure

1,728 cubic inches	1 cubic foot
27 cubic feet	1 cubic yard
128 cubic feet	1 cord (wood)
40 cubic feet	1 ton (shipping)
2,150.42 cubic inches	1 standard bushel
231 cubic inches	1 standard gallon
1 cubic foot about 4-5 of a bushel.	

Square Measure

144 square inches	1 square foot
9 square feet	1 square yard
30¼ square yards	1 square rod
40 square rods	1 rood
4 roods	1 acre
160 square rods	1 acre
640 acres	1 square mile
43,560 square feet	1 acre
6,272,640 square inches	1 acre

Dry Measure

2 pints	1 quart
8 quarts	1 peck
4 pecks	1 bushel
36 bushels	1 chaldron

Liquid Measure

4 gills	1 pint
2 pints	1 quart
4 quarts	1 gallon
31½ gallons	1 barrel
2 barrels	1 hogshead

Avoirdupois Weight

27 11-32 grains	1 dram
16 drams	1 ounce
16 ounces	1 pound
25 pounds	1 quarter
4 quarters	1 hundredweight
2,000 pounds	1 ton
2,240 pounds	1 long ton

Long Measure

12 inches	1 foot
3 feet	1 yard
5½ yards or 16½ feet.	1 rod
40 rods	1 furlong
8 furlongs or 5,280 ft.	1 statute mile
3 miles	1 league

Surveyor's Measure

7.92 inches	1 link
25 links	1 rod
4 rods	1 chain
10 square chains or 160 square rods	1 acre
640 acres	1 square mile or section
36 square miles	1 township

Weights of Everyday Things

Barrel of flour weighs 196 pounds.
Barrel of salt weighs 280 pounds.
Barrel of pork weighs 200 pounds.
Barrel of beef weighs 200 pounds.
12.4 cu. ft. of air weigh 1 pound.
1 barrel contains 31½ gallons; kerosene barrel, 50 gallons.
1 Cubic foot contains 7.48 gallons.
1 Cubic foot concrete weighs 144 pounds.
1 Cubic foot sand weighs 90 to 110 pounds.
1 Cubic foot broken stone weighs 90 to 110 pounds
17 Cubic feet of clay weigh about 1 ton.
18 Cubic feet of gravel in bank weigh about 1 ton.
Lime weighs 75 pounds per bushel.

Useful Rules

TO FIND diameter of a circle, multiply circumference by .31831.

To find circumference of a circle, multiply diameter by 3.1416.

To find area of circle, multiply square of diameter by .7854.

To find the area of a triangle multiply the base by one-half the altitude.

To find the volume of a cylinder multiply the area of base by the altitude.

To find the area of the surface of a sphere multiply the square of diameter by 3.1416.

To find volume of sphere multiply diameter cubed by .5236.

To find the volume of cone multiply the area of base by one-third of altitude.

To find surface of a ball, multiply square of diameter by 3.1416.

To find side of an equivalent square, multiply diameter of the circle by .8862.

To find cubic inches in a ball multiply cube of diameter by .5236.

Doubling the diameter of a pipe increases its capacity four times.

Double riveting is from 16 to 20 per cent stronger than single.

One cubic foot of anthracite coal weighs about 53 pounds.

One cubic foot of bituminous coal weighs from 47 to 50 pounds.

One ton of coal is equivalent to two cords of wood for steam purposes.

A horse power is equivalent to raising 33,000 pounds 1 foot per minute, or 550 pounds 1 foot per second.

How to Lay Off An Acre or Less

1. To get one acre measure:

Rod measures—10x16; 8x20; 5x32; 4x40.

Yard measures—5x963; 10x484; 20x242; 40x121.

Foot measures—10x4,356; 30x1,452; 60x726; 120x363; 300x145; 400x108.9.

2. To get less than an acre:

TO MEASURE OFF—

½-Acre—Will take 147½ feet each way.
1-3-Acre—Will take 120½ feet each way.
¼-Acre—Will take 104⅜ feet each way.
⅛-Acre—Will take 73¾ feet each way.

Know What Size Nails You Want

IT TOO freequently happens that in going to the hardware store to purchase nails we find ourselves in doubt as to what size we want. Nails are usually sold by the pound and according to the "penny." For example, a 10-d ("10d" means 10 penny, "2d", 2 penny, etc.) nail is 3 inches long and 15-100 of an inch in diameter. The following table gives information on different common nails. Remember that brads differ from common nails only in the head and point.

Size	Length in Inches	Diam. in Inches	No. to the lb.
2d	1	.07	876
3d	1¼	.08	568
4d	1½	.10	316
5d	1¾	.10	271
6d	2	.11	181
7d	2¼	.11	161
8d	2½	.13	106
9d	2¼	.13	96
10d	3	.15	69
12d	3¼	.15	63
16d	3½	.16	49
20d	4	.19	31
30d	4½	.21	24
40d	5	.23	18
50d	5½	.24	14
60d	6	.26	11

Measuring Wood and Round Timbers

A CORD of wood contains 128 cubic feet. To find number of cords in a pile, multiply the length by the height by the width and divide by 128.

To measure round timber, add the girth in inches at both large and small ends; divide by 2, which gives the mean girth; then multiply the length in feet by the square of one-fourth of the mean girth and the product will be the contents in cubic feet. This rule gives four-fifths of the tree contents, one-fifth being allowed for waste.

Measurements of Cisterns

TO ASCERTAIN the contents of circular cisterns, multiply the square of the diameter in feet by the depth in feet and that product by 373 and divide by 4,000 for hogsheads or by 373 and divide by 2,000 for bbl., or 5 7-8 for gal.

EXAMPLE—Find the number of barrels and gallons a cistern 10 feet in diameter and 8 feet in depth will hold. 10 by 10 by 8 equals 800. (800 by 373) divided by 2,000 equals 149 bbl. 800 divided by 5 7-8 equals 4,700 gallons.

Information About Water

IT REQUIRES about 1½ gallons to fill an ordinary wash bowl, 30 gallons to fill the average bath tub, and from 4½ to 7 gallons to flush the closet.

A gallon of water (United States Standard) weighs 8 1-3 pounds and contains 231 cubic inches.

A cubic foot of water contains 7½ gallons, 1728 cubic inches, and weighs 62½ pounds.

The average family uses 25 gallons per day for each person. Figure your requirements accordingly. Watering of cattle, sprinkling of lawns, etc., should be figured extra.

With 40 to 50 pounds pressure per square inch, an ordinary ¾-inch garden hose nozzle requires about 6 gallons per minute when throwing a solid stream, or about 4 gallons when spraying.

It requires approximately 16 gallons to sprinkle 100 square feet of lawn; 20 gallons will soak it thoroughly.

The friction of water in pipes is as the square of velocity. The capacity of pipes is as the square of their diameters; thus, doubling the diameter of a pipe increases its capacity four times.

A "miner's inch" of water is approximately equal to a supply of 12 United States gallons per minute.

Shingles Required in a Roof

TO THE square foot it takes 9 if exposed four inches; 8 if exposed 4½ inches, and 7 1-5 if exposed 5 inches to the weather.

To find the number of shingles required to cover a roof 38 feet long, and the rafters on each side 14 feet. Shingles exposed 4½ inches.

28 x 38—1064 (sq. ft.) x 8—8512 shingles. Ans.

To find the length of rafters, giving the roof **one-third** pitch; take **three-fifths** of the building. If the building is 30 feet wide, they must be 18 feet long, exclusive of projection.

Three and one-half lbs. of four-penny nails are required for laying 1,000 shingles. Five to 10 per cent should be added for waste and shortage.

Capacities of Boxes (Dry Measure)

A BOX 4 inches square and 4 1-8 inches deep will contain a quart.

A box 8 inches square and 4 3-16 inches deep will contain a gallon.

A box 8 inches by 8 2-5 inches and 8 inches deep will contain one peck.

A box 13 1-2 inches square and 11 3-4 inches deep will contain a bushel.

A box 24 inches square and 20 inches deep will contain a barrel.

Contents Boxes and Bins

Length	Breadth	Depth	
5 feet	3 feet	2 feet	24 bushels
5 feet	3 feet	3 feet	36 bushels
5 feet	3 feet	4 feet	48 bushels
7 feet	5 feet	3 ft. 9 in.	100 bushels
9 feet	6 feet	5 feet	216 bushels
13 feet	8 feet	6 feet	500 bushels
4 ft. 8 in.	2 ft. 4 in.	2 ft. 4 in.	20 bushels
24 inches	16 inches	28 inches	1 barrel
26 inches	15½ inches	8 inches	1 bushel
12 inches	11½ inches	9 inches	½ bushel
8 inches	8 inches	8 inches	1 peck
8 inches	8 inches	4⅛ inches	1 gallon

Stone and Brick Walls

A PERCH of stone is 24.75 cubic feet. When built in the wall, 2 3-4 cubic feet are allowed for the mortar and filling; hence, 22 cubic feet of stone make one perch of wall.

Masons estimate 3 pecks of lime and 4 bushels of sand to a perch of wall.

To find the number of perches of stone in a wall, multiply together the length, height and thickness in feet and divide by 22.

Common bricks are 7 1-4 to 8 inches long, 4 1-4 inches wide and 2 1-2 inches thick. Front bricks are 1-4-inch longer and wider.

It requires 20 common bricks to lay one cubic foot. In an 8-inch wall 15 common bricks make one foot of wall.

One and one-eighth barrels of lime and 5-8 yard sand will lay 1,000 brick.

One man with 1 1-4 tenders will lay 1,800 to 2,000 brick per day.

Do not use more mortar than necessary, as stone is the stronger. Do not lay the stone vertically, but on its natural quarry bed to prevent the water penetrating between the layers. For all damp places use cement mortar or lime and cement mortar.

THE PROGRESSIVE FARMER AND FARM WOMAN

BIRMINGHAM, ALA.
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ALL SUBSCRIPTIONS "STOP WHEN OUT"

For the Man Who Grows Farm Crops

Killing Nut or Coco and Bermuda Grasses

THE OBJECT to be kept in mind at all times is to keep down the top or above ground part of this weed during as large a part of the growing season as possible, which causes the roots to become exhausted. This may be accomplished by the following methods:

1. On land sufficiently fertile to grow rank smother crops, a continuous succession of such crops will crowd out most of the nut grass in several years time. Crops adapted to this purpose are cowpeas, soy beans, millet and sorghum for the summer, and bur clover, oats, rye, and hairy vetch for the winter. Bur clover is the best of the winter crops for smothering purposes. The land should be occupied by shading crops at all times.

2. On ordinary farm land that does not grow very dense stands or the shading crops clean cultivation is about all that can be done to control nut grass. The sweep does better work than the plow in cutting off the top growth of the weed and in keeping the tubers and roots at the surface where they become dried out and thus lose their vitality. Cultivation should be continued as late in the season as possible.

3. A combination of the above two methods can be made very effective.

4. On small areas of land thickly infested with nut grass pasturing with hogs is very effectove. The land should first be plowed so that the hogs may root with ease for the tubers. Ten good sized hogs may be depended on to dispose of an acre of nut grass in about two months if they receive no other feed. Midsummer is the best time to start the method. The nose of the animals, of course should not be rung.

Bermuda grass may also be eradicated by the use of rank growing shade crops. Where the winters are sufficiently severe the so-called roots may be frozen after being exposed to the air by very shallow plowing, leaving the furrows on edge as much as possible.

Value of All Crops by States

(U. S. Department of Agriculture)
(000 omitted)

	Av 1917-1921	1922	1923
1. Texas	793,117	698,572	1,064,775
2. Iowa	640,307	460,668	475,920
3. Illinois	675,957	418,845	459,509
4. California	498,917	404,076	447,993
5. North Carolina	404,926	325,629	415,737
6. Ohio	453,534	281,699	326,013
7. Missouri	420,456	279,075	321,097
8. New York	393,342	277,830	316,016
9. Minnesota	424,682	283,417	302,491
10. Nebraska	390,620	256,381	285,823
11. Kansas	443,857	288,759	284,978
12. Wisconsin	382,716	266,785	274,570
13. Oklahoma	353,692	239,480	264,975
14. S. Carolina	327,851	156,279	261,713
15. Indiana	394,281	225,952	261,420
16. Pennsylvania	362,808	244,523	258,099
17. Michigan	316,498	214,899	242,472
18. Georgia	440,296	209,471	236,390
19. Alabama	258,952	228,035	227,447
20. Kentucky	312,890	219,330	226,090
21. Tennessee	258,602	215,948	207,864
22. Arkansas	274,380	227,855	207,735
23. Mississippi	264,230	221,943	193,712
24. S. Dakota	296,806	181,190	192,466
25. Virginia	246,315	172,927	186,082
26. Louisiana	195,256	136,846	161,141
27. N. Dakota	270,863	233,505	153,604
28. Washington	188,480	128,126	149,861
29. Colorado	154,543	104,604	132,143
30. Montana	98,378	101,427	103,226
31. Oregon	118,644	87,589	94,507
32. Idaho	106,209	73,344	81,308
33. W. Virginia	100,398	66,354	76,523
34. Florida	80,044	77,724	69,785
35. Maryland	96,002	63,140	67,560
36. New Jersey	79,809	55,627	56,461
37. Massachusetts	56,059	43,432	55,866
38. Maine	68,218	39,647	54,507
39. Connecticut	49,949	39,279	49,995
40. Vermont	47,503	41,788	42,416
41. Utah	48,869	33,014	36,777
42. Arizona	35,304	27,833	36,339
43. Wyoming	42,095	24,581	30,636
44. New Mexico	40,560	18,979	26,100
45. New Hampshire	23,175	19,625	19,938
46. Delaware	22,290	15,454	17,079
47. Nevada	14,409	10,636	9,326
48. Rhode Island	5,839	3,857	4,491
TOTAL	11,972,928	8,445,979	9,470,976

Weight of seed in 100 pounds of pods of standard varieties of cowpeas

Variety	Alabama	Arkansas	Arlington Farm Va.
Whippoorwill, pounds	73	67.3	65.2
New Era, do	73	61.8	67.8
Groit, do	..	..	63.1
Brabham, do	..	....	69.2
Iron, do	69	65.3	66
Clay, do	67	58.3	63.5
Wonderful, do	70	....	....
Red Ripper, do	71	66	67
Taylor, do	77	64.7	72
Large Blackeye, do	77	71.2	76.3
Ex. Early Blackeye, do	76	75	72.3
Black, do	76	73.2	71.7

Germination of seed of standard varieties of cowpeas when stored for different periods

Variety	Length of time seed was stored: 4 years	7 years	10 years
Whippoorwill, %	96	93.5	79.5
New Era, %	73	61	18
Iron, %	60.5	17.5	14.5
Clay, %	38	8	1.5
Black, %	79	82	....
Taylor, %	50	26.5	0
Blackeye, %	22	3.5	0
Red Ripper, %	3.5	.5	0
Groit, %	0	0	0

Corn—Acreage, Yield, Production and Price

STATE	Acreage (1,000 acres) 1921	1922	1923	Yield per acre (Bushels) 1921	1922	1923	Production (1,000 bus.) 1921	1922	1923	Price Dec. 1 Cents per lb. 1921	1922	1923
Virginia	1,904	1,866	1,847	25.0	28.0	29.0	47,600	52,248	53,563	69	79	94
North Carolina	2,552	2,577	2,603	19.3	20.0	22.5	49,254	51,540	58,568	78	89	102
South Carolina	2,022	2,062	1,980	16.0	14.5	16.5	32,352	29,899	32,670	74	87	105
Georgia	4,665	4,385	4,034	15.0	12.0	12.2	69,975	52,620	49,215	53	86	107
Florida	788	775	820	14.6	14.0	12.5	11,032	10,850	10,250	53	87	100
Alabama	4,042	3,636	3,310	14.5	14.0	14.8	58,609	50,904	48,988	62	90	108
Tennessee	3,516	3,280	3,018	25.8	23.0	24.5	90,713	75,440	73,941	52	79	94
Mississippi	3,172	2,855	2,327	18.0	17.5	14.5	57,096	49,962	33,742	56	85	107
Louisiana	1,796	1,706	1,604	19.5	17.0	15.4	35,022	29,002	24,702	65	83	105
Arkansas	2,640	2,250	2,002	22.0	19.5	19.5	58,875	43,875	39,039	57	85	101
Texas	6,227	5,729	5,213	25.2	20.0	18.5	156,920	114,580	96,440	54	83	100
Oklahoma	3,077	3,200	3,264	25.0	18.0	11.5	76,925	57,600	37,600	32	70	87
United States	103,740	102,846	104,158	29.6	28.3	29.3	3,068,569	2,905,020	3,054,395	42.3	65.8	72.7

Sweet Potatoes—Acreage, Yield, Production and Price

STATE	Acreage (1,000 acres) 1921	1922	1923	Yield per acre (Bushels) 1921	1922	1923	Production (1,000 bus.) 1921	1922	1923	Price Dec. 1 (Cents per bu.) 1921	1922	1923
Virginia	44	46	44	95	135	120	4,180	6,210	5,280	125	87	105
North Carolina	102	110	100	101	113	105	10,302	12,430	10,500	97	80	98
South Carolina	83	104	94	95	92	97	7,885	9,568	9,118	90	71	86
Georgia	146	152	137	85	83	84	12,410	12,616	11,508	63	61	76
Florida	32	32	30	85	85	98	2,720	2,720	2,940	96	94	116
Alabama	135	142	113	90	95	104	12,150	13,490	11,752	73	75	83
Tennessee	44	44	35	100	95	110	4,400	4,180	3,850	95	78	100
Kentucky	18	20	20	104	101	103	1,872	2,020	2,060	115	110	120
Mississippi	107	109	101	80	105	98	8,560	11,445	9,898	74	69	91
Louisiana	88	85	78	94	92	90	8,272	7,820	7,020	65	61	95
Arkansas	54	47	40	105	80	95	5,670	3,760	3,800	82	89	92
Texas	100	105	86	82	83	80	8,200	8,715	6,880	85	85	114
Oklahoma	27	27	30	98	76	90	2,646	2,052	2,700	106	118	113
United States	1,066	1,117	993	92.5	97.9	97.9	98,654	109,394	97,177	88.1	77.1	97.9

Peanuts—Acreage, Yield, Production and Price

STATE	Acreage (1,000 acres) 1921	1922	1923	Yield per acre (Pounds) 1921	1922	1923	Production (1,000 lbs.) 1921	1922	1923	Price Dec. 1 (Cents per lb.) 1921	1922	1923
Virginia	153	130	124	820	600	990	125,460	78,000	122,760	5.8	5.5	6.5
North Carolina	141	145	148	919	840	1,100	129,579	121,800	162,800	5.6	4.0	7.4
South Carolina	36	36	38	825	760	850	29,700	27,600	32,300	4.0	5.0	7.2
Georgia	202	160	152	660	602	512	133,320	96,320	77,824	2.5	4.7	6.9
Florida	80	72	80	657	625	600	54,000	45,000	48,000	3.2	5.0	7.0
Alabama	330	205	142	550	550	469	181,500	112,750	66,598	2.8	4.8	5.8
Mississippi	19	18	15	650	675	600	12,350	12,150	9,000	6.0	6.0	6.0
Louisiana	18	18	17	487	600	450	8,766	10,800	7,650	6.0	6.9	7.5
Arkansas	16	18	17	720	643	650	11,520	11,574	11,050	5.0	6.0	7.0
Texas	195	172	122	635	560	620	123,825	96,320	75,640	3.4	4.0	6.4
Oklahoma	15	17	15	720	620	650	10,800	10,540	9,750	7.0	3.8	5.0
United States	1,214	1,005	884	683	630	720	829,307	633,114	636,462	4.0	4.7	6.8

Wheat—Acreage, Yield, Production and Price

STATE	Acreage (1,000 acres) 1921	1922	1923	Yield per acre (Bushels) 1921	1922	1923	Production (1,000 bus.) 1921	1922	1923	Price Dec. 1 (Cents per bu.) 1921	1922	1923
Virginia	847	830	838	9.8	12.5	13.3	8,301	10,375	11,145	116	122	110
North Carolina	600	600	544	7.5	9.0	11.1	4,500	5,400	6,038	144	136	128
South Carolina	118	165	175	11.0	8.0	11.0	1,298	1,320	1,925	208	157	154
Georgia	138	190	189	10.5	8.0	9.2	1,449	1,520	1,739	175	150	147
Alabama	20	20	20	10.5	10.9	10.0	210	218	200	153	160	130
Kentucky	634	650	620	10.0	11.5	12.4	6,340	7,475	7,688	115	118	108
Tennessee	450	472	442	10.0	9.5	10.2	4,500	4,484	4,508	120	123	115
Mississippi	6	5	4	14.0	12.0	15.0	84	60	60	130	145	110
Arkansas	103	78	70	9.3	13.0	11.0	958	1,014	770	100	196	108
Texas	2,081	1,249	1,559	10.0	8.0	10.5	20,810	9,992	16,370	100	110	103
Oklahoma	3,786	3,300	3,300	12.5	9.5	11.0	47,325	31,350	36,300	86	98	93
United States	63,696	62,317	58,308	12.8	13.9	13.5	814,905	867,598	785,741	92.6	100.7	92.3

To Inoculate Legumes

COATING the seed of legumes with inoculated soil before planting is a simple method of insuring soil inoculation at slight cost. County agents have found ordinary furniture glue effective in holding particles of inoculated soil to the seeds. This method gives each individual seed some of the particles of inoculated soil which it carries with it when it is planted. The scheme requires but a small amount of inoculation soil and costs but a few cents an acre. The method is described in Farmers' Bulletin 704 of the United States Department of Agriculture as follows:

Dissolve two handfuls of furniture glue for every gallon of boiling water and allow the solution to cool. Put the seed in a washtub and then sprinkle enough of the solution on the seed to moisten but not to wet it (1 quart per bushel is sufficient) and stir the mixture thoroughly until all the seed are moistened.

Secure the inoculated soil from a place where the same kind of plants as the seed are growing, making sure that the roots have a vigorous development of nodules. Dry the soil in the shade, preferably in the barn or basement, and pulverize it thoroughly into a dust. Scatter this dust over the moistened seed, using from one-half to one gallon of dirt for each bushel of seed, mixing thoroughly until the seed no longer stick together. The seed are then ready to sow.

The soil, itself, may be inoculated for legumes by the application of 1,000 to 2,000 pounds per acre of soil, from some field which has successfully grown the same or legumes of the same class, to the field on which the crop is to be grown. The inoculating soil should be applied to the seed bed and harrowed in before the hot sunshine has the opportunity of killing the legume bacteria.

Save Last Year's Special as Well as This One

OUR aim is to include in each "Reference Special" of The Progressive Farmer just as much new matter as possible—matter which has not appeared in any previous "Reference Specials," exceptions being made only for a few unusually important subjects.

Every Progressive Farmer reader should therefore, will do well to file his "Reference Specials" together year after year, and when he cannot locate needed information in one he may find it in another. We here call attention therefore to the following important subjects treated in our 1923 "Reference Special" and not repeated in this one.

How to have better health on the farm.
The farm water supply.
How to build a septic tank.
How to build a pit privy.
How to delint cotton seed.
Things to consider in starting a creamery.
How to produce a good quality of cream.
How butter is scored.
How to market hogs cooperatively.
How to control hog lice.
How cotton loses when exposed to weather.
Terracing levels.
Income tax information for the farmer.
How to succeed with poultry.
How to pack eggs.
How to candle eggs.
How to rid the farm of rats.
How to control moles.

Inoculation for Legumes

IN THE grouping below any one legume in a group will, if it has nodules on its roots, inoculate for any other legume in the same group, but so far as we know for no legume in any other group:

Group 1—Red clover, Crimson clover, Alsike clover, White clover, Hop clover.

Group 2—Alfalfa, Bur clover, Sweet clover, Melilotus or Black Medic.

Group 3—Vetches, Canadian field peas, garden peas and sweet peas.

Group 4—Soy beans.

Group 5—Garden beans.

Group 6—Cowpeas, Lespedeza, Beggarweed, Peanuts, Partridge Peas, Lima and Velvet Beans.

Quantity Seed Required Per Acre

Alfalfa (broadcast)	20 to 25 pounds
Barley	6 to 8 pecks
Buckwheat	3 to 5 pecks
Cotton	½ to 1½ bushels
Corn	½ to ¾ bushel
Cowpeas (broadcast)	1 to 2 bushels
Cowpeas (drill)	½ to ¾ bushel
Clover (red)	8 to 10 pounds
Clover (white)	4 to 8 pounds
Clover (crimson)	12 to 20 pounds
Clover (hur)	3 to 6 bushels
Field pea (small variety)	2½ bushels
Field pea (large variety)	3 to 3½ bushels
Grass (for lawns)	3 to 5 bushels
Kale	2 to 4 pounds
Lespedeza	15 to 25 paunds
Millet, pearl (for hay)	8 to 10 pounds
Melilotus	15 to 25 pounds
Oats	2 to 3 bushels
Orchard grass	12 to 15 pounds
Peanuts, (Virginia hulled)	½ bushel
Peanuts, (Spanish hulled)	1½ peck
Peanuts (in shells)	2 bushels
Rice	1 bushel
Rape (broadcast)	4 to 8 pounds
Red-top (recleaned)	12 to 15 pounds
Rye (early)	3 to 4 pecks
Rye (late)	6 to 8 pecks
Rye (forage)	8 to 10 pecks
Sorghum (forage-broadcast)	1 to 2 bushels
Sorghum (for seed or syrup)	5 to 8 pounds or 3 to 5 quarts.
(drills)	6 pounds, ½-bushel
Soy beans (drills)	1 to 3 pecks
Soy bean (broadcast)	1 to 1½ bushels
Timothy	15 to 25 pounds
Turnip (broadcast)	2 to 4 pounds
Velvet bean	1 to 2 pecks
Vetch, hairy (broadcast)	20 to 25 pounds with 1 bushel small grain
Vetch, kidney	18 to 22 pounds
Wheat	5 to 7 pecks

Purity, Germination and Weight Per Bushel of Seed

Average purity and germination tests of best commercial grade of seed and commonly accepted weight per bushel

Kind of seed	Purity %	Germination %	Wt. per bushel lbs.
Red clover	98.4	92.4	60
Alsike clover	98.3	91.5	60
White clover	96.9	90.8	60
Crimson clover	98.2	91.2	60
Sweet clover (hulled)	98.9	89.6	60
Bur clover (unhulled)	....	....	10
Lespedeza	93.9	82.1	25
Alfalfa	99.5	91.4	60
Timothy	99.6	93.5	45
Redtop	93.2	90.5	[1] 14
Orchard grass	86.9	86.6	14
Kentucky bluegrass	83.0	78.3	[2] 14
Bermuda grass	91.5	77.9	35
Bromus inermis	87.7	91.8	14
Meadow fescue	97.8	91.2	22-24
Italian rye grass	97.9	83.5	24
Perennial rye grass	97.9	83.6	24
Hairy vetch	98.7	89.0	60
Spring vetch	98.7	92.3	60
Golden millet	98.8	92.9	50
Common millet	98.0	93.5	50
Siberian millet	97.9	92.7	50
Hungarian millet	97.5	92.4	48-50
Japanese millet	96.4	88.9	32-35
Broom-corn millet	99.3	92.1	50
Amber sorgo	97.9	88.2	50
Orange sorgo	97.9	88.5	50
Sumac sorgo	98.3	90.5	50
Sudan grass	98.0	91.1	32
Kafir	98.1	91.3	56
Milo	97.7	91.2	56
Feterita	97.9	91.1	56
Rape	99.2	91.8	50
Wheat	98.8	94.4	60
Corn (field)	99.3	94.0	[3] 56
Barley	98.2	93.5	48
Oats	98.6	95.0	32
Rye	97.8	91.8	56
Flax	98.5	87.3	56
Buckwheat	98.6	92.7	48-52
Cotton	98.0	85.0	40-32

[1] Fancy recleaned, solid redtop seed weighs 30 to 38 pounds, or more, per measured bushel.

[2] Fancy recleaned Kentucky bluegrass seed weighs 19 to 28 pounds, or more, per measured bushel.

[3] Shelled.

Pertinent Facts About the Cotton Crop

How Much of the Consumer's Dollar Does the Cotton Farmer Get?

THE United States Department of Agriculture reports that in 1922 the cotton farmer averaged less than 20 cents out of each dollar paid for the common forms of cotton goods. The cotton grower's share and the share of other interests were divided as follows:

	Sheeting	Gingham	Calico	Percale
Retailer, jobber, and freight on goods, cents	36.5	28.1	29.6	35.0
Cotton dealer, manufacturer, and selling agent, cents	39.3	53.4	46.5	41.6
Freight and handling of cotton, cents	4.4	3.4	3.5	3.3
Cotton grower's share, cents	19.8	15.1	20.4	20.1

Weight of a Bushel of Cotton Seed

BAILEY'S Cyclopedia of American Agriculture gives the legal weight of a bushel of cotton seed in those states having such standard as follows:

Arkansas .....33 1-3 lbs. to the bushel
Alabama .....32 lbs. to the bushel
Florida .....32 lbs. to the bushel
Georgia .....30 lbs. to the bushel
Mississippi .....32 lbs. to the bushel
Missouri .....33 lbs. to the bushel
North Carolina .....30 lbs. to the bushel
South Carolina .....30 lbs. to the bushel
Tennessee .....28 lbs. to the bushel
Texas .....32 lbs. to the bushel
Virginia .....32 lbs. to the bushel

Parts of Cotton Plant

A KNOWLEDGE of the relative proportion of the different parts of the cotton plant per acre is sometimes worth while. Of course, the proportions of the different parts of the plant vary with the fertility of the soil, etc. At the Texas Experiment Station an average of 13 crops ranging in yield from 169 pounds of seed cotton to 1,170 pounds per acre, the average yield being about one-half bale, showed the pounds of leaves, stalks, bolls and burs produced per acre to be as follows:—

Stalks .....1293 lbs.
Leaves .....896 lbs.
Bolls .....488 lbs.
Burs .....354 lbs.

With 100 lbs. of lint, the average weight of the different parts of the plant was as follows:

Stalks .....588 lbs.
Leaves .....446 lbs.
Bolls .....313 lbs.
Burs .....162 lbs.

Exports and Consumption of American Cotton

THE following table shows for the five months ending December 31, 1923, and the same five months ending December 31, 1922, the consumption of American cotton, the number of American spindles active, and the exports of American cotton by countries:

	5 months, ending Dec. 31	
	1923	1922
Cotton spindles active	34,044,870	33,976,103
Cotton consumed	2,510,472	2,662,669
Countries to which exported:—		
United Kingdom	1,183,352	890,588
France	455,269	443,572
Italy	309,338	272,241
Germany	575,492	494,923
Other Europe	372,314	404,397
Japan	330,888	293,485
All other countries	97,298	106,846
TOTAL	3,323,951	2,906,052

Production of Linters

Year	Equivalent 500-lb Bales	Per Cent of Cotton Crop
1899-1900	114,000 bales	1.2
1900-1901	143,000 bales	1.4
1901-1902	166,000 bales	1.5
1902-1903	196,000 bales	1.8
1903-1904	195,000 bales	1.9
1904-1905	245,000 bales	1.7
1905-1906	230,000 bales	2.0
1906-1907	322,000 bales	2.3
1907-1908	268,000 bales	2.3
1908-1909	346,000 bales	2.5
1909-1910	313,000 bales	2.9
1910-1911	398,000 bales	3.2
1911-1912	536,000 bales	3.4
1912-1913	602,000 bales	4.2
1913-1914	629,000 bales	4.2
1914-1915	856,000 bales	5.3
1915-1916	931,000 bales	8.3
1916-1917	1,331,000 bales	10.9
1917-1918	1,126,000 bales	10.0
1918-1919	929,000 bales	7.7
1919-1920	608,000 bales	5.4
1920-1921	440,000 bales	3.3
1921-1922	398,000 bales	4.1

When Cotton is Marketed

LESS cotton is marketed in July than any other month, and the next smallest is August. Most cotton is marketed in October and the next largest quantity is marketed in November. The following shows the average percentages marketed each month for a 10-year period:

Month	Percentages marketed
August	2.1
September	12.4
October	20.8
November	19.4
December	14.4
January	7.7
February	5.4
March	5.0
April	4.0
May	3.6
June	3.4
July	1.8

Cotton is used throughout the entire year, therefore should be marketed throughout the whole year. It is used in nearly the same quantities each month and, therefore, should be marketed in nearly the same quantities each month.

Estimating Weevil Infestation

MAKE counts of 100 squares at five points, north, east, south, and west corners, and near the center of the field. Suppose the results were as follows:

	Squares Examined	Squares Not Punctured	Squares Punctured
Northwest corner...	100	80	20
Northeast corner...	100	90	10
Southwest corner...	100	75	25
Southeast corner...	100	95	5
Center	100	85	15
Total for field....	500	425	75

Divide the total number of punctured squares by 5, the number of points examined. The result in the above example is 15, which represents the average number of punctured squares per 100, or 15 per cent. The counts should be made for each field.

To simplify the counts a hand tally counter may be used to great advantage as it does all the counting by pressing a small lever as each square is counted. It relieves the one counting of any head work. These tally counters can be purchased from the hardware stores.

In making the counts at each point in the field it is not necessary to count all the squares on a stalk of cotton. Count average number from each stalk, from several rows at each point. It is usually best to start counting on the second or third row from the edge of the field, and about the same distance from the end of the rows at each corner of the field.—South Carolina Extension Service.

Showing Yield Per Acre in Pounds of Lint Cotton, by States

State	Yield per acre (pounds of lint). 1914	1915	1916	1917	1918	1919	1920	1921	1922	*1923	10 year average Yield	Rk
Virginia	265	225	310	189	270	255	230	230	230	325	252	5
North Carolina	290	260	215	194	268	266	275	264	250	290	257	3
South Carolina	255	215	160	208	250	240	260	140	123	187	203	6
Georgia	239	189	165	173	190	152	138	90	100	82	151	10
Florida	175	120	105	100	85	74	86	80	102	40	96	15
Alabama	209	145	79	125	149	122	111	124	142	91	129	14
Mississippi	195	167	125	155	187	160	145	148	157	89	152	9
Louisiana	165	165	170	210	167	93	126	114	144	125	150	11
Texas	184	147	157	135	115	140	174	98	130	146	142	13
Arkansas	196	180	209	170	158	155	195	160	173	97	169	8
Tennessee	200	188	206	130	175	195	185	228	190	90	178	7
Missouri	270	240	225	190	200	257	275	325	360	162	256	4
Oklahoma	212	162	154	165	92	195	230	104	103	90	149	12
California	500	380	400	242	270	268	266	258	188	277	305	1
Arizona	....	....	....	285	280	270	224	242	222	311	[1]262	2
United States	209.2	170.3	156.6	159.7	159.6	161.5	178.4	124.5	141.5	128.8	159	

* Preliminary estimate. [1] 7 year average.

Showing Gain or Loss by Holding Cotton

COTTON PRICES FOR 32 YEARS—AUGUST, 1889 to JULY, 1921

MONTH	Average price for average day for 32 years	Gross increase in price from holding. Difference from average 12.51c fall price (for 4 mos. of Sept., Oct., Nov., Dec.) and months shown		
	Cents per pound	Change in cents per pound	Change per cent	Change per bale based on 30c cotton
September	12.62	Gain .11	Gain .88	Gain $1.32
October	12.55	" .04	" .32	" .48
November	12.46	Loss .05	Loss .4	Loss .60
December	12.42	" .09	" .72	" 1.08
January	12.47	" .04	" .32	" .48
February	12.26	" .25	" .2	" .36
March	12.55	Gain .04	Gain .32	Gain .48
April	12.73	" .22	" 1.76	" 2.64
May	12.46	" .25	" 2.	" 3.00
June	12.92	" .41	" 3.28	" 4.92
July	13.26	" .75	" 6.	" 9.00
August	13.30	" .79	" 6.32	" 9.48
High month of year for 32 years	15.01	Gain 2.50	Gain 19.98	Gain 19.98
High day of year for 32 years	15.87	Gain 3.36	Gain 26.86	Gain 26.86

Showing Acreage of Cotton (Picked) by States

(1,000 acres)

State	1914	1915	1916	1917	1918	1919	1920	1921	1922	*1923	10 Year Av. Yield	Rank
Virginia	45	34	42	50	44	42	42	34	55	73	46	14
North Carolina	1527	1282	1451	1515	1600	1490	1587	1403	1625	1678	1515	8
South Carolina	2861	2516	2780	2837	3001	2835	2964	2571	1912	2030	2630	7
Georgia	5433	4825	5277	5195	5341	5220	4900	4172	3418	3433	4721	2
Florida	221	193	191	183	167	103	100	65	118	143	148	12
Alabama	4007	3340	3225	1977	2570	2791	2858	2235	2771	3149	2892	4
Mississippi	3054	2735	3110	2788	3138	2848	2950	2628	3014	3298	2956	3
Louisiana	1299	990	1250	1454	1683	1527	1470	1168	1140	1395	1337	9
Texas	11931	10510	11400	11092	11233	10476	11898	10745	11874	14081	11524	1
Arkansas	2480	2170	2600	2740	2991	2725	2980	2382	2799	3054	2692	5
Tennessee	915	772	887	882	902	758	840	634	985	1167	874	10
Missouri	145	96	133	153	148	125	136	103	198	339	157	11
Oklahoma	2847	1895	2562	2783	2998	2424	2749	2206	2915	3295	2667	6
California [1]	47	39	52	136	173	185	275	140	202	233	148	12
Arizona	....	....	....	41	95	107	230	90	101	128	*113	13
All other	20	15	25	15	12	10	24	18	44	72	25	
United States	36832	31412	34985	33841	36008	33566	35878	30509	33036	37420	34348	

[1] Included ginnings in Lower California. This not included in U. S. total.
* 7 year average.

Production of Lint Cotton (Excluding Linters) in 500-pound Gross Weight Bales, by States, According to Final Ginning Reports

[Thousands of bales, as finally reported by U. S. Bureau of the Census.]

State	1914	1915	1916	1917	1918	1919	1920	1921	1922	*1923	10 Year Av. Bales	Rank
Virginia	25	16	27	19	25	23	22	16	26	50	25	15
North Carolina	931	699	655	618	898	830	925	776	852	1020	820	7
South Carolina	1534	1134	932	1237	1570	1426	1623	754	493	795	1149	3
Georgia	2718	1909	1821	1884	2122	1660	1415	787	715	596	1562	2
Florida	81	48	41	38	29	16	18	11	25	12	32	14
Alabama	1751	1021	533	518	801	713	663	580	828	600	800	8
Mississippi	1246	954	812	905	1226	961	895	813	989	615	941	5
Louisiana	449	341	443	639	588	298	388	278	343	365	413	9
Texas	4592	3227	3726	3125	2697	3099	4345	2198	3222	4290	3452	1
Arkansas	1016	816	1134	974	987	884	1215	796	1011	620	945	4
Tennessee	384	303	382	240	330	310	325	302	391	220	318	10
Missouri	82	48	63	61	62	64	79	70	149	115	79	11
Oklahoma	1262	640	823	959	577	1016	1336	481	627	620	834	6
California [1]	50	29	44	58	67	56	75	34	28	49	49	13
Arizona [2]	....	....	....	22	56	60	103	45	47	83	59	12
All other	14	7	14	5	6	5	13	9	19	37	13	
United States	16135	11192	11450	11302	12041	11421	13440	7954	9762	10081	11477	

[1] Included ginnings in Lower California. This not included in U. S. total.
* December estimate of crop.
[2] 7 year average.

Monthly Farm Prices of Cotton, 1908-1923

(U. S. averages, cents per pound)

Year	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Weighted av crop year.
1914-1915	12.4	8.7	7.8	6.3	6.8	6.6	7.4	7.4	8.1	9.1	8.6	8.6	7.2
1915-1916	8.1	8.5	11.2	11.6	11.3	11.4	11.5	11.1	11.5	11.5	12.2	12.5	11.4
1916-1917	12.6	14.6	15.5	18.0	19.6	17.1	16.8	15.9	18.0	18.9	20.2	24.7	17.7
1917-1918	24.3	23.4	23.3	27.3	27.7	28.9	29.7	30.2	31.8	28.5	27.4	28.6	27.7
1918-1919	27.8	32.2	31.8	29.3	27.6	28.7	24.9	24.0	24.5	26.0	29.5	31.1	28.2
1919-1920	32.5	30.3	31.3	36.5	35.6	35.9	36.2	37.3	37.7	37.2	37.4	35.5	
1920-1921	36.8	31.1	25.5	19.4	13.9	11.5	11.8	10.3	9.4	9.4	9.8	9.6	15.8
1921-1922	9.8	12.6	19.8	17.7	16.2	16.3	15.5	15.9	16.0	15.9	18.7	20.4	17.0
1922-1923	20.7	21.1	20.0	22.4	23.8	24.5	25.9	27.7	28.4	26.9	25.6	26.2	23.9
1923-1924	23.5	24.1	27.2	28.8	31.0	....	....	....	....	....	....	....	....

Monthly Farm Prices of Cotton Seed, 1910-1923

(U. S. averages, dollars per ton)

Year	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Jan. 15	Feb. 15	Mar. 15	April 15	May 15	June 15	July 15	Weighted av crop year.
1914-1915	20.16	13.88	15.28	14.01	17.73	19.14	23.33	22.32	22.69	22.07	20.82	20.05	15.59
1915-1916	20.14	20.98	33.73	34.01	35.54	36.85	36.75	36.56	38.13	37.91	35.79	36.06	30.25
1916-1917	35.22	41.13	47.19	55.82	56.35	52.53	51.43	53.18	55.94	55.61	57.19	56.90	48.14
1917-1918	56.61	57.58	65.02	69.38	68.29	67.51	66.95	68.27	68.08	68.16	66.03	64.11	64.04
1918-1919	61.34	67.90	65.85	64.97	65.05	64.93	64.65	64.00	64.28	63.83	63.80	64.24	65.62
1919-1920	66.23	62.14	66.95	72.65	69.07	69.88	69.34	67.18	68.71	69.88	66.16	61.64	67.87
1920-1921	43.22	29.96	28.94	26.00	19.83	18.96	19.76	18.92	17.23	17.28	17.06	18.75	20.56
1921-1922	22.06	27.19	31.05	29.15	28.78	29.24	30.17	32.72	40.79	40.21	37.71	36.92	29.25
1922-1923	32.44	25.37	31.79	40.18	42.93	43.35	45.16	46.32	47.60	46.58	43.14	41.42	32.13
1923-1924	37.47	40.88	40.90	45.92	....	....	....	....	....	....	....	....	....

Know How to Feed the Farm Livestock

Suggested Rations for Horses or Mules

RATIONS FOR 1,000-POUND IDLE HORSE

(Theoretical Daily Requirement)

5 pounds ear corn, or 5 pounds grain sorghum heads.
4 pounds legume hay.
8 pounds corn stover.

4 pounds oats.
5 pounds legume hay.
8 pounds oat straw.

8 pounds legume hay.
7 pounds corn stover.
3 pounds cane molasses.

4 pounds shelled corn.
4 pounds legume hay.
7 pounds corn stover.

RATIONS FOR 1,000-POUND HORSE—VERY LIGHT WORK

(Theoretical Daily Requirement)

10 pounds ear corn or 10 pounds grain sorghum heads.
5 pounds legume hay.
5 pounds grass hay or corn fodder (leaves)

8 pounds oats.
4 pounds legume hay.
6 pounds grass hay or corn fodder (leaves)

5 pounds shelled corn.
1½ pounds cottonseed meal.
5 pounds corn stover.
5 pounds sorghum fodder.

5 pounds soy beans or cowpeas—ground.
5 pounds cane molasses.
10 pounds oat-straw or corn stover.

7 pounds shelled corn.
1 pound cottonseed meal.
3 pounds legume hay.
6 pounds corn stover or straw.

8 pounds shelled corn.
4 pounds legume hay
6 pounds corn stover.

RATIONS FOR 1,000 POUND HORSE—HARD WORK

(Theoretical Daily Requirement)

12 pounds shelled corn or 15 pounds ear corn or sorghum grain heads.
2 pounds cottonseed meal.
6 pounds grass hay or corn fodder.
4 pounds legume hay.

12 pounds shelled corn or 15 pounds ear corn.
1 pound cottonseed meal.
10 pounds legume hay.
2 pounds corn stover.

8 pounds peanuts, ground with hulls.
7 pounds cane molasses.
6 pounds legume hay.
5 pounds grass hay or corn fodder (leaves)

RATIONS FOR 1,000-POUND HORSE—MEDIUM WORK

(Theoretical Daily Requirement)

14 pounds ear corn of sorghum grain heads.
5 pounds legume hay.
6 pounds grass hay or corn fodder (leaves)

12 pounds oats.
1 pound cottonseed meal.
11 pounds grass hay or corn fodder (leaves)

11 pounds shelled corn, or 13 pounds ear corn.
1 pound cottonseed meal.
4 pounds legume hay.
6 pounds corn stover or corn fodder (leaves).

10 pounds shelled corn, or 12 1-2 pounds ear corn.
1 pound cottonseed meal.
3 pounds legume hay.
7 pounds corn stover or corn fodder (leaves).

Products From a Ton of Cotton Seed and a Ton of Soy Beans

	Cotton Seed	Soy Beans
Meal	950 lbs.	1,650 lbs.
Oil	315 lbs.	250 lbs.
Hulls	525 lbs.	....
Linters	75 lbs.	....
Waste	135 lbs.	100 lbs.

Grain for Milk Cows on Good Pasture

PROF. C. H. Eckles, of the University of Minnesota, suggests the following named quantities of grain with abundant pasture for varying production:

Jersey cow producing— Feed—
20 lbs. of milk daily..... 3 lbs. of grain
25 lbs. of milk daily..... 4 lbs. of grain
30 lbs. of milk daily..... 6 lbs. of grain
35 lbs. of milk daily..... 8 lbs. of grain
40 lbs. of milk daily..... 10 lbs. of grain

Holstein-Friesian or Ayrshire cow producing— Feed—
25 lbs. of milk daily..... 3 lbs. of grain
30 lbs. of milk daily..... 5 lbs. of grain
35 lbs. of milk daily..... 7 lbs. of grain
40 lbs. of milk daily..... 9 lbs. of grain
50 lbs. of milk daily..... 10 lbs. of grain

While this is, of course, an arbitrary rule and variations should be made to suit different conditions and individual cows, it is in accord with good feedding practice and probably is as good a rule of its kind as has been formulated.

Shelling Percentages of Grain Sorghums

Class	Shelling Percentage	Rank	Grain to Ton Heads
Feterita	75.23	1	1,504 lbs.
Kowliang	74.50	2	1,490 lbs.
White Milo	73.95	3	1,479 lbs.
Blackhul Kafir	73.13	4	1,462 lbs.
Red Kafir	72.68	5	1,453 lbs.
Yellow Milo	70.96	6	1,419 lbs.
Darso	70.65	7	1,413 lbs.
Schrock Kafir	69.87	8	1,397 lbs.
Pink Kafir	69.53	9	1,390 lbs.

—Texas Experiment Station.

Digestible Nutrients and Plant Foods in 100 Pounds of Feeding Materials

FEED	Digestible Nutrients in 100 pounds			Plant Foods in 100 pounds		
	Protein pounds	Carbohydrates pounds	Fat pounds	Nitrogen	Phosphoric acid	Potash
Corn	7.5	67.8	4.6	1.68	.69	.40
Corn and cob meal	6.1	63.7	3.7	1.38	.58	.63
Corn cob (ground)	0.4	47.3	0.2	.32	.07	.66
Corn bran	5.8	56.9	4.6	1.55	.62	.54
Wheat bran	12.5	41.6	3.0	2.56	2.95	1.62
Wheat shorts	13.4	46.2	4.3	2.77	2.11	1.18
Wheat feed (shorts and bran)	12.9	45.1	4.0	2.69	2.19	.88
Rye	9.9	68.4	1.2	1.89	.73	.57
Barley	9.0	66.8	1.6	1.84	.85	.74
Brewers' grains, dried	21.5	30.5	6.1	4.24	.99	.09
Oats	9.7	52.1	3.8	1.98	.81	.56
Oat hulls	3.0	36.3	1.3	.64	.21	.58
Rice (rough)	4.7	64.6	1.7	1.22	.49	.26
Rice hulls	0.3	12.3	0.7	.53	.09	.22
Rice bran, (high grade)	7.9	38.1	8.8	1.94	2.22	1.20
Rice bran (low grade)	7.1	37.7	7.5	1.74	2.26	1.22
Rice polish	8.0	57.2	7.5	1.90	3.08	1.17
Kaffir grain	9.0	65.8	2.3	1.78	.57	.31
Kaffir-head chops	6.1	56.6	2.0	1.55	...	...
Feterita grain	10.1	65.4	2.4	2.00	...	...
Feterita head chops.	7.0	56.8	1.8	1.78	...	...
Sorghum grain	7.5	66.2	2.6	1.47	.82	.33
Milo grain	8.7	66.2	2.2	1.71	.78	.43
Milo-head chops	6.3	58.1	1.9	1.60	...	...
Cotton seed	13.3	29.6	16.5	3.12	1.50	1.50
Cottonseed meal, 44 per cent	37.0	21.8	8.6	7.06	2.67	1.81
Cottonseed meal, 36 per cent	30.0	27.2	7.0	5.76	2.66	1.80
Linseed meal, new process	31.7	37.9	2.8	5.90	1.77	1.30
Linseed meal, old process	30.2	32.6	6.7	5.42	1.70	1.27
Cowpeas	19.4	54.5	1.1	3.78	1.01	1.49
Peanut, with hull	17.9	8.2	32.6	4.06	.76	.64
Peanut, without hulls	27.4	10.0	42.9	4.88	1.02	.65
Peanut, cake from hulled nuts	40.3	22.5	9.2	7.17	1.21	1.05
Peanut cake or meal from unhulled nuts	24.2	13.6	7.7	5.46	...	...
Soy beans	33.2	24.7	16.1	5.84	1.37	2.47
Soy bean oil meal	39.7	34.7	4.5	6.91	...	...
Velvet bean seed	18.1	50.8	5.3	3.33	...	....
Velvet bean and pod meal	13.6	51.6	3.4	2.94	.69	1.59
Sunflower seed, with hulls	13.5	38.1	20.3	2.58	1.22	.56
Sunflower seed, without hulls	23.3	17.0	33.9	4.43	...	...
Whole milk	3.3	4.8	4.0	.56	.19	.17
Skimmilk (centrifugal)	3.6	5.1	0.2	.61	.22	.17
Skimmilk (gravity)	3.1	4.6	0.9	.53	.22	.17
Buttermilk	3.4	4.9	0.1	.58	.17	.16
Semi-solid buttermilk	29.3	41.0	6.2	4.99	...	...
Dried buttermilk	12.6	16.7	3.5	2.14	...	...
Tankage (55-60 per cent protein)	54.0	....	7.2	9.30	5.58	5.50
Acorn, kernel and shell	2.3	36.2	3.8	.54	....	....
Beet pulp, dried	4.6	65.2	0.8	1.42	.24	.38
Molasses (cane)	1.0	58.2	...	.51	.24	3.16
Artichokes	1.0	14.6	0.1	.32	.14	.49
Carrot	1.0	9.1	0.2	.19	.11	.27
Chufa	0.4	10.2	3.3	.11	...	...
Mangel	0.8	6.4	0.1	.22	.04	.22
Potato	1.1	15.8	0.1	.35	.12	.53
Sweet potatoes	0.9	24.2	0.3	.29	.09	.51
Turnips	1.0	6.0	0.2	.22	.13	.29
Corn stover, medium in water	2.1	42.4	0.7	.91	.40	1.15
Corn stover, very dry	2.2	47.8	1.0	.94	.45	1.29
Corn leaves, (fodder)	3.2	40.1	1.1	1.14	...	...
Corn shucks	0.6	47.3	0.3	.46	.23	1.02
Corn tops	3.1	45.5	1.1	.90	...	...
Sorghum fodder or hay	2.8	44.8	2.0	1.18	...	...
Johnson grass hay	2.9	45.0	1.0	1.06	.42	1.13
Millet (German) hay	4.8	49.7	1.7	1.28	.35	1.44
Red top hay	4.6	45.9	1.2	1.18	.44	1.88
Timothy hay	3.0	42.8	1.2	.99	.31	1.36
Oat hay	4.5	38.1	1.7	1.34	.80	3.27
Alfalfa hay	10.6	39.0	0.9	2.38	.54	2.23
Red clover hay	7.6	39.3	1.8	2.05	.39	1.63
Crimson clover hay	9.7	36.8	1.0	2.26	.61	2.24
Cowpea hay	10.8	38.6	1.1	2.5	.55	1.75
Soy bean hay	10.6	40.9	1.2	2.30	.7	1.10
Kudzu vine hay	11.4	39.8	1.2	2.67	...	....
Lespedeza hay	8.6	41.1	1.1	1.94	1.03	2.07
Peanut vine, without nuts	6.6	37.0	3.0	1.46	.22	1.39
Peanut vine with nuts	9.4	37.7	10.6	2.10	...	...
Peanut vine mowed	7.0	38.4	3.3	1.55	...	...
Velvet bean hay	12.0	40.3	1.4	2.62	.55	2.65
Vetch (hairy) hay	15.7	37.1	1.9	3.18	1.03	2.62
Cottonseed hulls	0.3	33.3	1.5	.74	.36	1.28
Soy bean straw	2.8	38.5	1.0	.9	.12	.89
Cowpea straw	3.4	39.1	0.7	1.09	...	...
Corn silage	1.1	15.0	0.7	.34	.16	.44
Sorghum silage	.6	11.6	0.5	.24	.15	.19
Corn and soy bean silage	1.6	13.8	0.8	.40	.16	.45
Soy bean silage	2.6	11.0	0.7	.62	.17	.71

Cost of Protein Per Pound in Feeds at Various Prices Per Ton

Cost of feed per ton	Per cent of protein in feeds										
	12	16	20	24	28	32	36	38	41	43	45
	Cost per pound of protein										
	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents
$25.00	10.42	7.82	6.25	5.23	4.47	3.91	3.47	3.29	3.05	2.91	2.77
30.00	12.50	9.38	7.50	6.25	5.36	4.69	4.16	3.95	3.66	3.48	3.38
35.00	14.58	10.94	8.75	7.29	6.25	5.47	4.86	4 61	4.26	4.07	3.89
40.00	16.67	12.50	10.00	8.33	7.14	6.25	5.55	5.26	4.88	4.65	4.44
45.00	18.75	14.06	11.25	9.38	8.03	7.03	6.25	5.92	5.49	5.23	5.00
50.00	20.83	15.63	12.50	10.42	8.93	7.81	6.94	6.58	6.09	5.81	5.55
55.00	22.91	17.19	13.75	11.46	9.82	8.59	7.64	7.24	6.71	6.40	6.11
60.00	25.00	18.75	15.00	12.50	10.71	9.38	8.33	7.89	7.32	6.97	6.67
65.00	27.08	20.31	16.25	13.54	11.67	10.16	9.03	8.55	7.92	7.56	7.22
70.00	29.16	21.87	17.50	14.58	12.50	10.94	9.72	9.21	8.53	8.14	7.78
75.00	31.25	23.44	18.75	15.62	13.39	11.72	10.41	9.87	9.14	8.72	8.33
80.00	33.33	25.00	20.00	16.67	14.28	12.50	11.11	10.53	9.75	9.32	8.89
85.00	35.41	26.56	21.25	17.71	15.18	13.28	11.80	11.18	10.36	9.88	9.44
90.00	37.50	28.12	22.50	18.75	16.07	14.06	12.50	11.84	10.97	10.48	10.00
95.00	39.58	29.69	23.75	19.79	16.43	14.84	13.19	12.50	11.58	11.04	10.55
100.00	41.67	31.25	25.00	20.83	17.86	15.62	13.89	13.16	12.19	11.63	11.11

Grazing Crops

GRAZING CROPS	When Planted	How Planted, Seed per acre	Grazing Period
Alfalfa	Sept., Oct., March	Broadcast 20 to 25 pounds	12 to 18 months after seeding Mar. to Oct.
Melilotus	Feb. and March	Broadcast 10 to 20 pounds	60 days after seeding at any season when growing
Red Clover	Aug. 15 to Oct. 1	Broadcast alone 15 pounds of seed	60 to 90 days after seeding, best grazing March, April and May
Crimson clover	Aug. 15 to Sept. 15	Broadcast 15 lbs.	May
Bur clover	Aug. 15 to Sept. 15	40 to 60 lbs. in bur.	Late winter and early spring
Cowpeas	April 15 to July 1	1 1-2 bu. seed broadcast, 1-2 bu. in drill	75 to 90 days after seeding; last 30 to 90 days
Soy beans	April 15 to July 1	1 1-2 bu. seed broadcast, 1-2 bu. in drill	90 to 100 days after seeding; last 60 to 90 days
Velvet beans	May 10 to June 15	1 to 2 pecks not hulled in drill	150 to 180 days after seeding; last 60 to 90 days
Peanuts—Spanish	May 1 to July 1	1 to 4 bushels not hulled in drill	100 to 120 days after seeding; last 60 to 90 days
Lespedeza	February and March	1 bushel or 24 lbs. seed broadcast	75 to 90 days after seeding, grazed any time during warm weather or while growing
Vetch	Sept. and Oct.	With oats or some cereal, 2 pks. seed	Grazed during winter and spring, but makes growth until March, April and May
Oats	Sept. 1 to Nov. 1	2 to 3 bushel seed broadcast	60 to 90 days after seeding —November to June
Wheat	Oct. 1 to Nov. 15	1½ bu. to 2 bu seed broadcast	
Barley	Sept. 15 to Oct. 15	2 to 2½ bus. seed broadcast	
Rye	Sept. 1 to Nov. 15	2 to 2½ bu. seed broadcast	
Sorghum	April 15 to July 1	Broadcast 1 to 2 bu. seed	60 to 90 days after seeding—last 30 to 90 days.
Chufas	Mar. 15 to July 1	2 to 4 pecks in rows	120 to 150 days after seeding; last all winter
Sweet potatoes	Plants set in May	7,000 to 9,000 plants, 3 ft. rows, 1½ to 2 feet in row	150 to 160 days after planting; last 60 to 90 days.
Rape	Sept. and Feb. 15 to March 10	In rows 3 to 4 lbs. seed, broadcast 6 to 8 lbs. seed	45 to 60 days after seeding; last all winter, spring seeding, until May 15
Sudan grass	April and May	Broadcast 25 to 30 lbs. Close drill 20 to 25 lbs. 36-inch rows 6 to 8 lbs.	50 to 75 days after seeding

Making More Money From Milk Cows

How to Make Dairying Profitable

Feeding the Dairy Calf

LEAVE with dam at least two days and preferably longer.

2. Feed 6 to 12 pounds warm milk per day. When feeding milk keep buckets clean to prevent scours.

3. At three weeks of age start substituting skimmilk gradually. Calf should be on skimmilk alone when six weeks old, 12 to 16 pounds a day.

4. Continue skimmilk at least 4 months.

To get a well-developed animal, develop it early, if it is worth raising.

5. Feed calves whole oats and cracked corn mixed, just what they will clean up, as soon as they will eat it.

6. Feed a legume hay, preferably clover.

7. When 3 months of age, put on pasture.

8. Supply plenty of fresh water.

9. Provide salt when they eat grain and hay.

10. After 6 months old, feed as much silage and hay as they will clean up.

11. Feed only a little grain, especially if on good pasture.

Age at Which to Breed

BREED Holsteins and Ayrshire heifers to freshen at about 27 to 30 months.

2. Guernseys and Jerseys at 24 to 27 months.

3. The age to breed depends on size and development. If undersized, delay breeding a few months.

Feeding for Milk Production

FEED the cow according to her production and condition.

2. Feed each cow as an individual.

3. Feed a balanced ration.

4. Grain mixture should contain plenty of bulk.

5. Ration should contain succulence (silage if possible).

6. Hay, especially a legume hay, is essential in feeding cattle and is the cheapest part of the ration.

Suggested Rations for Cotton Belt

WITH a legume hay,

300 pounds corn and cob meal,
100 pounds bran,
100 pounds cottonseed meal,

2 Without legume hay,

200 pounds of corn and cob meal,
150 pounds bran,
150 pounds cottonseed meal,

3 These rations can be changed to suit conditions and other feeds available.

4. Ration should run around 18 per cent protein for milk production.

5. Legume hay makes ration cheaper and is more efficient for producing milk and keeping cow in good condition.

Amounts to Feed

ONE pound of hay for each 100 pounds of live weight.

2. Three pounds of silage for each 100 pounds of live weight.

3. One pound of grain to each 3 or 4 pounds of milk produced, depending on percentage of fat in milk.

4. Feed home-grown feeds as far as possible.

5. Amount of grain can be materially reduced if good pasture is available.

Give the Cow a Rest

EVERY cow should have six to eight weeks rest every year and produce a calf to give economical and maximum production.

1. Feed cow well during dry period and get her in good condition and she will return it in her next year's production and the calf she produces.

2. Reduce feed a few days before freshening and feed bran mash the day before freshening.

Care of Fresh Cows

WARM drinking water for a few days, if very cold weather, so as not to chill cow, as she is always feverish at this time.

2. Feed bran mashes for two or three days, then start with small grain ration.

3. When udder is normal, increase ration gradually, about one pound every other day until maximum milk flow is reached.

4. Then reduce feed slightly and continue feeding according to her production.

Care of Herd Sire

DON'T let him run with herd.

2. Allow plenty of exercise.

3. Don't feed more than very small amounts of silage.

4. Feed plenty of hay and just enough grain to keep in good breeding condition.

5 Don't let bull get fat or too thin.

Management Suggestions

REGULARITY in feeding and especially in milking are essential for persistent production. Clean milking pays, as the strippings contain the most of the cream.

2. Exercise is essential to every animal.

3. Pasture is essential to economic production.

4. Fresh water before the dairy cow at all times increases production. A cow should be watered twice a day at least.

5. Kindness and consideration will increase profits with dairy cows as producing milk is a highly nervous function.

6. Handle all bulls carefully. The "safe" bull is the most dangerous. It is best to ring bulls when they are about a year old or younger.

7. Provide comfortable, sanitary quarters. This is probably the most important point in this territory.

Minerals for the Dairy Cow

LEGUME hay of some kind is the most satisfactory and economical way to supply to the ration minerals which are essential for growth, maintenance, production, and reproduction of the dairy cow. In case no legume hay is available, add steamed bone meal, wood ashes, limestone or rock phosphate to grain ration, 3 to 4 pounds to 100 pounds of grain. Legume hay gives best results by far. Pasture supplies minerals also.

2. Common salt, preferably rock salt, should be kept before the dairy cow at all times.

Cow Testing Associations

COW testing associations are organizations of dairy farmers for increasing production and profits of their herds.

2. The associations are formed under the supervision of the dairy extension department of each state.

3. These associations show the farmer which cow is producing enough to make a profit and which one is losing money.

4. A competent tester can assist the farmer in his feeding and management problems.

5. To insure success there must be 500 cows in each association and these must be fairly close together.

6. Each cow is tested one day in each month at morning and night milking.

7. Cost is less than in official work but records are not recognized by the breed associations.

Official Work

OFFICIAL work is used only on 7 and 30 day tests, which are gradually being done away with.

Semi-official Work

THIS is operated under supervision of the dairy extension department of each state.

2. Each cow on test is tested two days in every month.

3. The records are recognized by their breed associations.

4. Cost ranges from $3 to $4 per day plus transportation of tester. Write your agricultural college for detailed information.

5. Records add greatly to value of cow.

Dairy Barn Suggestions

A WELL built, well lighted, well ventilated and well planned barn is necessary for every dairy farm.

2. Barns are practically standardized in regard to framing and interior arrangement. The cost of wood and the materials makes it necessary to make a more careful study if savings are to be made.

3. "Lean-to" sheds may be built by farmers having a few cows, the interior arrangement being of standard dimensions.

4. The barn should be built either large enough for future needs or such that it can be enlarged later.

5. The location is very important. The barn should be at least 200 feet from the house and handy to a well, shed and feed storage. Drainage is necessary if the cows are to be kept healthy and clean.

6. Gambrel roofs give more room for hay in the loft than do the common gable roofs. (But it is not desirable to store hay over cows unless double or tight floor for loft is used.—Ed.)

7. For two rows of stalls the barn should be either 34 or 36 feet wide. If the stalls are arranged for the cows to face the center, with a six-foot alley between mangers, the barn should be 34 feet wide; if an eight-foot feed alley, 36-feet wide. If the stalls are arranged for the cows to face the outside walls, with an eight foot driveway in the center, the barn should be 34 feet wide.

8. Not less than 500 cubic feet of air space should be provided per cow.

9. The barn should be well ventilated.

10. The minimum amount of window space should be 4 square feet of glass per cow.

11. Concrete or cork brick floors are best.

12. Concrete floors should be given a rough finish with a wooden float.

13. Mangers should be 12 inches wide at bottom and at least 24 inches at the top. High front mangers are best.

14. Stationary manger divisions should never be used.

15. The manger should not be too close to the walls when cows face out. For convenience in feeding, at least a 4-foot passageway should be left in front of the mangers.

16. The stalls should be 3 feet 6 inches wide and deep enough to accommodate the cows. This requires 4 feet 6 inches for small cows, up to five feet for large cows.

17. Gutters should be 16 or 18 inches wide.

18. Gutters and mangers should have drains to simplify cleaning.

19. Some type of swinging stanchion should be used.

20. The ceiling should be made so that it can be kept free from dust and cobwebs.

21. The inside of the barn should be whitewashed or painted every year.

22. The outside of the barn should be kept well painted to preserve the wood and improve the appearance.—U. S. Department of Agriculture.

Weight of Dairy Calves

THE table shows the normal weight of calves of different breeds at different ages. It is very useful in determining whether a calf is making satisfactory gains or whether it is being stunted.

Normal Weight of Dairy Calves From Birth To 1 Year by Breeds

Age in months	Holstein, pounds	Jersey, pounds	Ayrshire pounds	Shorthorn pounds
Birth	88	53	65	75
1	121	76	90	118
2	157	105	128	133
3	200	140	170	174
4	249	174	218	225
5	302	222	254	268
6	349	260	286	316
7	389	302	304	348
8	435	340	336	419
9	466	376	366	461
10	501	407	406	538
11	529	432	427	...
12	558	456	456	547

Success has been obtained by weaning both Jersey and Holstein calves at five months, at four months, and at three months, and practically normal gains were secured in almost every case when the calves were taken off a skimmilk ration at the age of sixty days.—Missouri Experiment Station.

Weights of Cream and Skimmilk

THE weight of cream varies according to the percentage of butterfat and the amount of air in it. The following are average weights:—

% of Fat in Cream	Specific Gravity	Pounds Per Gal.
10	1.024	8.54
15	1.018	8.49
20	1.013	8.45
26	1.0062	8.39
30	1.002	8.35
36	0.995	8.30
40	0.991	8.26
46	0.984	8.21
50	0.980	8.17
80	0.949	7.92
Skimmilk	1.036	8.63

Dairy Department, University of Wisconsin.

Milk Required to Make a Pound of Butter

		%	Pounds or Quarts	
Milk	testing.....	3.0	28.56	13.28
"	"	3.6	24.2	11.07
"	"	3.8	22.9	10.48
"	"	4.0	21.7	9.96
"	"	4.2	20.7	9.49

Milk weighs 8 3-10 lbs to the gallon; 1 quart will weigh about 2.15 pounds.

Livestock Record Associations

FOLLOWING is a list of the various record associations of all the leading breeds of livestock. By writing any association at the address given, full information may be had concerning registry fees, transfers, etc.:

Hogs

The American Duroc-Jersey Association, 817 Exchange Ave., Chicago, Ill.

The National Duroc-Jersey Record Association, Peoria, Ill.

The American Poland-China Record, Chicago, Ill.

Standard Poland-China Record Association, Maryville, Mo.

The National Poland-China Record Association, Winchester, Ind.

National Spotted Poland-China Record, Wulsin Bldg., Indianapolis, Ind.

American Spotted Poland-China Record Association, Ozark Bldg., Kansas City, Mo.

American Hampshire Record Association, Peoria, Ill.

Chester White Record Association, Rochester, Ind.

American Berkshire Association, Box 293, Springfield, Ill.

O. I. C. Swine Breeders' Association, Goshen, Ind.

Cattle

American Shorthorn Breeders' Association, 13 Dexter Park Ave., Chicago, Ill.

Milking Shorthorn Society, Independence, Iowa.

American Polled Shorthorn Breeders' Society, Hannibal, Wisc.

American Hereford Cattle Breeders' Association, Kansas City, Mo.

American Polled Hereford Breeders' Associtaion, Des Moines, Iowa.

American Jersey Cattle Club, New York, N. Y.

The Holstein-Friesian Association of America, Battleboro, Vt.

American Guernsey Cattle Club, Petersboro, N. H.

The Ayrshire Breeders' Association, Brandon, Vt.

Red Polled Association, Richland Center, Wis.

American Aberdeen-Angus Breeders' Association, Union Stock Yards, Chicago, Ill.

Sheep

American Shropshire Registry Association, Lafayette, Indiana.

American Hampshire Sheep Association, 72 Woodland Ave., Detroit, Mich.

American Southdown Breeders' Association, Springfield, Ill.

American Rambouillet Breeders' Association, Maryville, Ohio.

Dorset Horn Breeders' of America, Washington, Pa.

American Oxford Down Association, Hamilton, Ohio.

American Cheviot Sheep Society, Fayetteville, N. Y.

National Merino Association, Ray, Ind.

American and Delaine Merino Association, Delaware, Ohio.

Horses, Jacks and Jennets

Percheron Society of America, Union Stock Yards, Chicago, Ill.

American Saddle Horse Association, Lafayette, Ind.

American Trotting Register Association, Chicago, Ill.

The Jockey Club (Thoroughbreds), New York, N. Y.

American Breeders' Association of Jacks and Jennets, Columbia, Tenn.

Standard Jack and Jennet Registry of America, Kansas City, Mo.

Composition of Dairy Products

Milk—Milk is made up as follows: Water 87.10 parts, fat 3.90 parts, casein 3.00 parts, milk sugar 4.75 parts, albumen .40 parts, ash .75 parts.

Cream.—Cream is composed of the same products as milk, but the water content is much lower and the fat much higher. Cream may contain anywhere from 10 to 70 parts of butterfat.

Butter.—Butter, in a general way, is made up as follows: Fat 82.5 parts, water 14.0 parts, salt 2.5 parts, and curd 1.0 part.

Cheese.—Ordinary store cheese is made up about as follows: Water 36.5 parts, butterfat 34.0 parts, proteins 24.0 parts, salt 5.5 parts.

Cottage Cheese.—Cottage cheese made from skimmed milk with about one pound of 50 per cent cream added to each 100 pounds of milk is made up about as follows. Water 72.8 parts, butterfat 3.7 parts, protein 18.3 parts, sugar, acid and salt 5.5 parts in about equal proportions. If cottage cheese is made from whole milk, the main difference is that the water content will be lower and the fat higher and the protein practically the same or slightly lower.

Ice Cream.—The composition of ice cream varies with the fat content and other ingredients used. The following may be taken as a fair average for about the extreme requirements as to fat contents required by different state laws: No. 1—Fat 8 parts, protein 4 parts, sugar 21 parts, water 66 parts, ice one part. No. 2—Fat 14 parts, protein 2.2 parts, sugar 20 parts, water 63 parts, ice .8 parts.

Influence of Age on Values of Dairy Cows

Shown in Per Cent of Maximum Value.

Age	Grade cows worth $80 at 3 years of age Holstein	Guernsey	Jersey	Ayrshire
	%	%	%	%
Birth.....	10	11	11	9
6 months.....	24	24	24	20
1 year.....	38	40	38	36
2 years.....	60	62	62	57
3 years.....	78	81	87	81
4 years.....	89	92	94	88
5 years.....	98	**100**	98	96
6 years.....	**100**	**100**	**100**	**100**
7 years.....	97	97	98	99
8 years.....	91	91	94	95
9 years.....	82	83	82	90
10 years.....	74	74	77	79
11 years.....	66	65	66	71
12 years.....	59	56	56	62
13 years.....	51	48	47	52
14 years.....	43	42	39	45

Age	Purebred cows worth $200 at 3 years of age Holstein	Guernsey	Jersey	Ayrshire
	%	%	%	%
Birth.....	24	22	18	17
6 months	34	33	27	27
1 year.....	46	45	41	39
2 years.....	62	63	61	57
3 years.....	78	78	80	76
4 years.....	91	90	91	88
5 years.....	98	98	98	97
6 years.....	**100**	**100**	**100**	**100**
7 years.....	96	96	96	98
8 years.....	89	89	90	93
9 years.....	80	79	79	85
10 years.....	69	70	68	75
11 years.....	59	59	55	63
12 years.....	50	49	45	51
13 years.....	41	39	35	39
14 years.....	32	30	26	30

It is believed that within reasonable limits the per cent columns will be found useful in estimating the values of other classes of dairy cows.—U. S. Department of Agriculture.

Official Methods of Boll Weevil Control

A GREAT many conflicting statements have been made about the best methods of boll weevil control in the Southern States. A great many unauthorized and self-appointed leaders have expressed half-baked opinions. A considerable number of persons have tried to mislead the farmers for commercial purposes. Some perfectly honest men have expressed opinions on observation and experience covering too short a period of time.

It is extremely fortunate that the Association of Southern Agricultural Workers, composing the foremost scientists and authorities in the whole Cotton Belt, at their meeting in Birmingham, Ala., last month, gave in definite, concise, clear cut, and dependable form the exact opinions of Southern leaders who have given the most thorough and dependable study to this whole problem throughout the years that it has menaced Southern agriculture.

We advise each cotton farmer to read and re-read, and use for constant reference through the cotton growing season, the following official statement of the Southern Agricultural Workers as to the best and most authoritative means of combating the boll weevil.

I.—The First Application

1. That one pre-square poison application be given wherever hibernated weevils appear fairly abundant on the young cotton (20 or more weevils per acre). Treatment should be applied at the first indication of squaring. The application may be repeated if appreciable numbers of weevils are evident before the fruit blooms appear. **At this time and for this particular treatment,** the grower may use either:

(a) Home-mixed, molasses-calcium-arsenate mixture (usual formula, 1 pound of calcium arsenate, 1 gallon of molasses, 1 gallon of water, or, with extremely heavy infestation and with frequent rains, a stronger and more expensive mixture, containing 2 pounds of calcium arsenate, 1 gallon table quality of syrup and one-half gallon of water which may give quicker killing and better control). In syrup mixtures the syrup must always be sweet or unfermented and should be applied within 24 hours after being mixed. The usual application required is about 1 gallon per acre and is applied by using a homemade mop to sprinkle a few drops into the tip of the plant, or;

(b) He may use straight calcium arsenate applied either by machine, or, at this pre-square stage only, the dust may be shaken from a bag with equal effectiveness while weevils are feeding in the tips of the plants. The bag treatment is not effective on large, fruiting cotton.

Any pre-square treatment, or the Florida Method, may need to be followed up by later dusting also to secure maximum profits through protection against re-infestation, such as will always be liable to occur.

II.—For Later Applications, Calcium Arsenate Dusting

2. For the treatment of fruiting cotton generally, and especially on soils capable of producing 1-3 bale or more per acre normally, **the calcium arsenate dusting method is most reliable and profitable** and is strongly recommended in preference to late season applications of any syrup mixtures or other liquid poisons yet tested.

Dusting should begin when 10 per cent of the squares show weevil puncture and at least three applications of 5 pounds per acre should be given with proper machinery and at 4 and 5 day intervals. Thereafter dust should be applied only as needed to keep infestation below 20 per cent until after a full crop of bolls has been set and has become well grown.

3. The Florida Method, though not yet as extensively tested as may be desirable under a wide range of soil fertility, fertilizer applications and varying climatic conditions, seems to be applicable to the coastal areas and other areas where hibernated weevils are likely to be extremely abundant the early summer rainfall normally high and where yielding capacity of soils is relatively low and where, therefore, heavier expenditures for poisoning cannot be incurred.

III.—Pick Early; Plow Under Stalks

4. Early picking of the crop should be followed wherever possible by immediate **deep burial of the green cotton stalks** to destroy the food supply of adult weevils, to prevent the emergence of the late fall generations and to remove favorable shelter conditions for weevil hibernation. Exceptions may be made where winter erosion of soil follow fall planting.

5. Community-wide action in weevil control may add greatly to the effectiveness of each of these measures. Therefore, the coöperation of all growers, whether owners or tenants, should be enlisted in putting into effect this fundamental program for weevil control for 1924.

IV.—Variety and Cultural Practices

1. Prepare ground early so as to have a firm, smooth, well settled seed bed at planting.

2. Delay planting until danger from frosts and cold is past and the soil is warm enough to give prompt germination and vigorous early growth. Plant one bushel or more seed per acre. A perfect stand is immensely important. As nearly as practicable all cotton in the same community should be planted at the same time and in the same variety.

3. Plant if possible only selected seed of an improved variety having a staple not less than 7-8 inch recommended by the State Experiment Station for the section and soil in question. It is definitely proved that increased yields worth from $10 to $40 per acre may be secured by planting selected seed.

4. Width of cotton rows should be from three to four feet, depending on the fertility of the soil, spacing in the row should be from 8 to 12 inches with 1 to 3 stalks to the hill. The closer spacing and thicker stands are recommended for the poorer soils and for sections which commonly suffer from heavy weevil infestation and frequent summer rains.

5. Cultivate shallow, and often enough and as late as necessary to keep the crop entirely free from weeds and grass.

V.—Soils and Fertilizers

The committee recommends that for the production of cotton in 1924, every possible encouragement be given to the selection of the best soil on the farm. To this end, we would stress **the use of only the well-drained, fertile lands** and when available, the early soils.

We also recommend the further use of **soil improving practices.** To this end, we urge the growth of summer legumes and of winter cover crops as often as is practicable in the cropping system to help supply nitrogen and organic matter.

As for the kind and quantity of **fertilizers** to be used on various soil types, we advise the farmer to be guided by the recommendation of the experiment stations.

VI.—Plant Diseases

When soil is infected with cotton wilt fungus we recommend that good seed of Dixie Triumph, Toole, Lewis 63 and other varieties known to be highly resistant to wilt and early enough to prove productive under boll weevil conditions be planted. Where root knot and wilt are present we recommend that a rotation be practiced to rid the soil of nematodes, followed by the best wilt resistant varieties. A three year rotation may include corn, small grain, peanuts, velvet beans, and Brabham or iron peas.

For **anthracnose** control we recommend two-year rotation and the use of seed free from the disease.

Where **angular leaf spot, black arm and bacterial boll rot** are serious we recommend delinting the seed with sulphuric acid.

VII.—Economics of Cotton Production

Not more acres but more cotton to the acre; greater efficiency in every phase of cotton production; a well balanced, self-supporting farm unit; soil building; liberal fertilization and coöperative marketing were recommended.

Facts for Tobacco and Peanut Growers

Record-breaking Carry-over of Bright Tobacco and Burley

OF the 1,651,930,177 pounds of leaf tobacco held by American manufacturers and dealers on January 1, 1924, 619,840,139 (or more than one-third) was from the bright yellow district of Virginia, North Carolina, South Carolina, and Georgia—the largest carry-over of bright tobacco on record. The carry-over of burley tobacco was also the largest on record. These facts constitute a strong argument for holding down tobacco acreage this year. Let us see just how many millions of pounds of each type of tobacco have been carried over each year for the last eight years:

	Bright Va., N. C., S.C.	Va. Sun-cured	Va. Dark	Burley	Ga., Fla. Cigar	Ky., Tenn. Dark
1917 ..	332	8	46	188	6	171
1918 ..	428	5	45	177	5	215
1919 ..	427	8	46	139	7	267
1920 ..	418	9	37	227	6	210
1921 ..	523	7	32	237	7	235
1922 ..	570	10	36	293	9	243
1923 ..	544	8	23	282	7	194
1924 ..	619	8	32	334	8	214

How Are Tobacco Grades Determined?

HOW are tobacco grades determined? What is meant by the different letters and figures used in grading?

In the first place, each belt has its own grades, since soil and climate variations alter classing and grading. The five belts in the tobacco district are:

1. **South Carolina Belt**—All of South Carolina and the North Carolina counties bordering upon Eastern South Carolina.
2. **"New Belt"**—Eastern North Carolina. ..
3. **"Old Belt"**—Including all of North Carolina not in 1 and 2, together with the greater part of Virginia.
4. **The Dark Fired Belt**—In Virginia.
5. **The Suncured Belt**—In Virginia.

The two sets of letters and one of figures have special significance—every letter and every figure means something. The first letter used in naming a grade represents the family of tobacco as follows:

A—Wrapper
B—Export cutter leaf
D—Cigarette cutter leaf
E—Smoking lug and granulated
F—Priming
H—Cutting leaf taken from B and D for special types of cheap cigarettes.

The numbers stand for: 1, first grade; 2, second grade; and so on. Then the letters to the right of the grade have meanings as follows:

L—Lemon
O—Orange
G—Green
M—Mahogany

Thus A-1-L means first grade lemon wrapper; B-3-O means third grade orange export cutting leaf; A-6-M means sixth grade mahogany wrapper; E-2-G means second grade green smoking lug, etc., etc.

Peanuts—Spacing and Varieties

THE United States Department of Agriculture in the following table indicates the width of spacing for a number of varieties of peanuts

Variety	Distance Between Rows.	In Rows.
Spanish ..... Valencia	32 to 38 in.	7 to 10 in.
Tennessee Red ..... Georgia Red	32 to 42 in.	8 to 12 in.
Virginia Bunch	32 to 38 in.	8 to 12 in.
Virginia Runner	36 to 42 in.	12 to 18 in.
North Carolina	34 to 38 in.	12 to 15 in.
African	36 to 42 in.	12 to 18 in.

These rates of spacing are satisfactory for a fairly moderate rainfall, but in certain parts of Texas in which rainfall is deficient, wider spacing is advisable. The following table gives the rate of spacing of the Spanish variety for the different sections of Texas:

Annual Rainfall	Width of Row		Distance in Drill
20 inches.....	36 inches 30 inches	or	10 to 12 inches 12 to 15 inches
20 to 30 inches...	36 inches 30 inches	or	10 inches 12 inches
30 to 40 inches...	36 inches 30 inches	or	8 to 10 inches 10 to 12 inches
40 to 50 inches...	36 inches 30 inches	or	6 to 8 inches 8 to 10 inches
Over 50 inches..	36 inches 30 inches	or	6 inches 8 inches

Using the first table as a guide, other varieties may be spaced according to the amount of rainfall and the fertility of the lands. For instance, if Spanish peanuts should be planted in 36-inch rows and 8 to 10 inches apart in the drill, the Virginia Bunch should be put in rows of the same width, but probably slightly farther apart in the drill, say 10 to 12 inches. As in the case of cotton, the better the soil the more distance should be given plants each way. It is a good plan to plant just thick enough to have vines cover land when they are full grown.

As to varieties for different sections of the state, the Spanish variety has generally made the highest yield. However, for the Gulf Coast section, Spanish and Virginia Bunch are recommended for nuts, and Improved Valencia for forage. The Virginia variety has given as equally good results.

Of the several varieties, Jumbo and Virginia Runner have a spreading habit of growth, while the others are bunch kinds. Spanish and Valencia are both used for oil making but they are also suitable for hog pasture. Jumbo, Virginia Bunch, Virginia Runner, and Valencia are sold by the pound, while Spanish are sold by the bushel of 30 pounds.

Important Tobacco Statistics

THE following figures show the acreage, yield, production, and December 1 prices of tobacco for each of the leading Southern States engaged in tobacco production, also the totals for the United States for 1921, 1922, 1923:

STATE	Acreage			Yield per Acre			Production			Price December 1		
	1921	1922	1923	1921	1922	1923	1921	1922	1923	1921	1922	1923
	1,000 acres	1,000 acres	1,000 acres	Lbs.	Lbs.	Lbs.	1,000 pounds.	1,000 pounds.	1,000 pounds.	Cts. p. lb	Cts. p. lb	Cts. p. lb
Maryland	26	26	24	715	770	792	18,590	20,020	19,008	19.0	17.5	22.0
Virginia	167	209	182	550	750	740	91,850	156,750	134,680	20.5	24.0	20.0
North Carolina	450	505	552	561	500	700	252,450	252,500	386,400	26.0	30.3	21.0
South Carolina	80	85	102	630	640	730	50,400	54,400	74,460	11.0	23.0	24.0
Georgia	14	11	17	564	540	661	7,896	5,940	11,237	25.0	26.0	30.0
Kentucky	385	525	578	846	850	855	325,710	446,250	494,190	15.5	19.5	16.6
Tennessee	100	130	146	750	725	750	75,000	94,250	109,500	20.0	22.0	18.0
United States...	1,427	1,695	1,820	750	736	810	1,069,693	1,246,837	1,474,786	19.9	23.2	20.3

The following table shows the production for each of the leading tobacco "belts" of North Carolina, South Carolina, and Virginia, for the last five years, together with the price per pound on December 1 of each of these years:

	1919		1920		1921		1922		1923	
	1,000 Lbs.	Price Cents	1,000 Lbs.	Price Cents	1,000 Lbs.	Price Cents	1,000 Lbs.	Price Cents	1,000 Lbs.	Price Cents
Old Belt	229,920	52.2	319,112	21.7	174,202	23.2	209,708	30.2	249,500	22.3
New Belt	257,566	37.8	311,718	20.6	197,220	20.4	199,060	27.7	306,647	24.1
Va. Dark	36,603	25.0	45,600	9.9	24,600	18.7	49,080	18.8	40,504	17.9
Va. Sun Cured	6,567	28.0	9,018	10.0	4,025	19.0	8,162	14.3	5,656	11.0

Peanut Production by States, 1921, 1922, 1923

STATE	Acreage			Yield per Acre			Production			Price December 1		
	1921	1922	1923	1921	1922	1923	1921	1922	1923	1921	1922	1923
	1,000 acres	1,000 acres	1,000 acres	Lbs.	Lbs.	Lbs.	1,000 pounds.	1,000 pounds.	1,000 pounds.	Cts. p. lb	Cts. p. lb	Cts. p. lb
Virginia	153	130	124	820	600	990	125,460	78,000	122,760	5.8	5.5	6.5
North Carolina	141	145	148	919	840	1100	129,579	121,800	162,800	5.6	4.0	7.4
South Carolina	36	36	38	825	760	850	29,700	27,600	32,300	4.0	5.0	7.2
Georgia	202	180	152	660	602	512	133,320	96,329	77,824	2.5	4.7	6.9
Florida	80	72	80	675	625	600	54,000	45,000	48,000	3.2	5.0	7.0
Tennessee	9	14	14	943	750	935	8,487	10,500	13,090	5.0	4.5	7.0
Alabama	330	205	142	550	550	469	181,500	112,750	66,598	2.8	4.8	5.8
Mississippi	19	13	15	650	675	600	12,350	12,150	9,000	6.0	6.0	6.0
Louisiana	18	18	17	487	600	450	8,766	10,800	7,650	6.0	6.0	7.5
Texas	195	172	122	635	560	620	123,825	96,320	75,640	3.4	4.0	6.4
Oklahoma	15	17	15	720	620	650	10,800	10,540	9,750	7.0	3.8	5.0
Arkansas	16	18	17	720	643	650	11,520	11,574	11,050	5.0	6.0	7.0
United States....	1,214	1,005	884	683	630	720	829,397	633,114	636,462	4.9	4.7	6.8

Carolinas Double Tobacco Acreage

THE following figures show that both North Carolina and South Carolina have doubled their tobacco acreages in the last decade:

	5 year Av. 1912-16	1922 Acreage	1923 Acreage
Virginia	188,900	209,000	182,000
North Carolina	266,800	505,000	552,000
South Carolina	46,560	85,000	102,000
United States	1,289,800	1,695,000	1,820,000

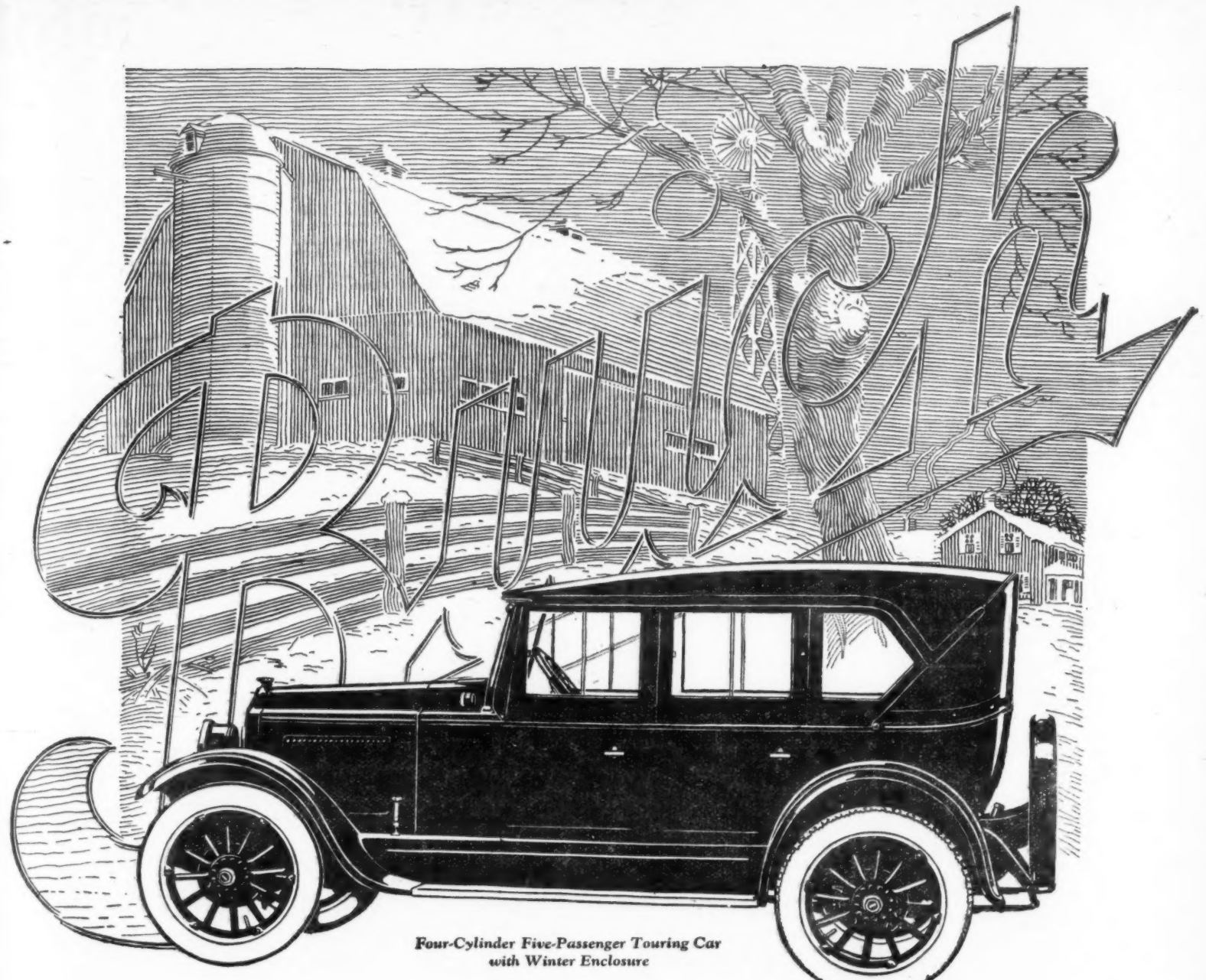
Classification of Soils Based on Productiveness

Poor.....15-25 bu. corn
6-10 bu. wheat
125-175 lbs. lint cotton

Medium..... 25-35 bu. corn
10-18 bu. wheat
175-250 lbs. lint cotton

Good..... 35-40 bu. corn
18-25 bu. wheat
250-450 lbs. lint cotton

Rich.....Over 50 bu. corn
Over 25 bu. wheat
Over 450 lbs. lint cotton



Four-Cylinder Five-Passenger Touring Car with Winter Enclosure

Snug for Winter Driving

By the addition of a winter enclosure, the Buick five-passenger, four-cylinder touring car is ideally equipped for cold weather driving.

The dependable power of the sturdy Buick valve-in-head engine and the added safety of the Buick four-wheel brakes are essentials to daily use that make Buick so well suited to traveling all kinds of roads in every season.

Snugly protected by tight glass-paneled curtains, the touring model approximates closed car convenience at no sacrifice of its durable utility.

Ask any Buick dealer to show you this enclosure-equipped car.

WHEN BETTER AUTOMOBILES ARE BUILT, BUICK WILL BUILD THEM

BUICK MOTOR COMPANY, FLINT, MICHIGAN

Division of General Motors Corporation

Pioneer Builders of Valve-in-Head Motor Cars — Branches in all Principal Cities—Dealers Everywhere

Handy Hints for the Farm Mechanic

Practical Rules to Be Observed in Painting

BELOW are just a few rules from experience for the painter to bear in mind if he desires to do a good job and a lasting one. Paint is a great preserver and putting it on is an interesting job when you go at it right. Bear in mind, good profitable painting cannot be done in a careless way.

1. Don't use cheap paint. The best is the cheapest in the long run.

2. Never paint rough woodwork. Plane it smooth. It will look better and take far less paint.

3. Don't paint old woodwork or buildings before being scraped thoroughly and well brushed.

4. Be careful not to put on a second coat until the first one becomes thoroughly dry.

5. Never paint wet or damp woodwork.

6. Don't leave the brushes in paint.

7. Don't leave brushes in open air to dry out. Put them in a tin of water, and they will be soft for the next operation.

8. Never leave the paint bucket or box uncovered.

9. Never thin paint or clean brushes near a hot fire.

10. Don't use cheap, light brushes. Use one of weight most suitable for the occasion.

11. Never attempt to paint on damp or foggy mornings.

12. Don't paint decaying material. It never pays. And besides it takes considerable paint.

13. Bear in mind that it takes a little "elbow grease" to paint well, so as to get into the cracks and crevices.

Facts About Belting

THERE are four common forms of belts—chain, canvas, rubber, and leather. All except the chain belt stretch and must be tightened from time to time. The usual method is to cut the belt, remove a piece and fasten the ends together. Canvas, rubber and leather belts may be cemented together, but belts are usually laced or patented belt fastenings are used. The patented belt fastenings can be applied in much less time than it takes to lace a belt and most of them are good.

Advice concerning the use of leather belts to get the best results is given by an old mechanical engineer.

The hair side and not the rough, or flesh side, of the belt should run next to the pulley for two reasons:

First, only the flesh sides will stretch. The hair side will not stretch except under very great strain; and if the hair side is out, there is a constant tendency to crack it. Second, the hair side being the smoother, is forced by the power in much closer contact with the surface of the pulley. With this greater contact the belt grips the pulley more firmly—there is less slippage, less loss of power and less burning of belt.

Another thing, many people use too small pulleys with the result that the belt runs too slowly and is under excessive and unnecessary strain. Use larger pulleys and run the belt faster. They will carry the power with less strain. A speed of 3,000 feet per minute is about the most efficient for leather belting.

Another thing, in dressing a belt do not use resin or soap. Resin or soap will cause the leather both to rot and to collect moisture. If the belting becomes hard and needs dressing, use neat's-foot oil or castor oil. Do not put on too much—a little will go a long ways.

Ten Rules for Care of Implements and Machinery

MORE farm machinery rusts out than wears out. The South spends enough money for farm machinery to give us two to five times as good equipment as we have if we only took care of it. Here are ten rules to remember:

1. **Keep the bolts tight.** The machine will not run long with loose bolts.

2. **Oil holes should always be kept open** and no dirt or grit should be allowed to get into any bearings. Someone has well said "Eternal vigilance and oil are the price of smooth-running, efficient farm tools."

3. **All wearing parts of all machines should be well lubricated** when in use. Many farmers seem to realize that automobiles and gasoline engines should be lubricated often, but forget the value of the best lubricating oil on the common, every-day field implements and machinery.

4. **The principal lubricants** are fluid oils and semi-solids, such as graphite. Light oils should be used on surfaces moving over each other at high speed; heavy oils and greases used where the pressure is great and the motion slow, as on wagon axles.

5. **When through using an implement or machine in the field, it should be cleaned at once. Dirt and rust may be removed by** the use of a scrape, kerosene, and old rags. **Iron parts should be greased** to prevent rust. This applies especially to **plows, harrows, cultivators, and drills.**

6. **For the iron parts,** kerosene and tallow or cheap axle grease are **preferable to paint** because it is rather difficult to remove paint from iron.

7. **Keep the wooden parts painted.** As a rule, it is advisable for the average farmer to use ready-mixed paints. However, if a farmer prefers to mix colors with oil, red lead and linseed oil make a mixture that adheres well to clean surfaces of wood and is affected about as little by the weather as more expensive mixtures.

8. **Rust is more destructive than wear,** and sunshine and rain are more destructive to the wooden parts than rust is to the iron parts. For these reasons, it is necessary to **keep machinery under shelter** when not in use.

9. Many implements and machines **should be taken to pieces at least once a year** for the purpose of thoroughly cleaning every part and especially all wearing parts and oil cups. This insures the discovery of badly worn and broken parts, makes it possible to thoroughly clean and oil every part, and —most important of all—makes a machine expert out of the farmer.

10. When a machine **finishes its work of the season** and is ready for the implement shed, or house, a record of the repairs needed should be made on a card and the card attached to it. **All necessary repair parts should be ordered** and the machines put in first class condition in a farm shop furnished with the necessary tools for repair work during dull seasons.

Power of Wind Mills

Name	Kind	Diameter in feet	Velocity of wind in miles per hour	Horse-Power
Monitor	Wood	12	20	.357
Challenge	"	14	20	.420
Halliday	"	22.5	20	.89
Aermotor	Steel	12	20	1.05
Ideal	"	12	20	.606
Perkins	"	14	20	.609

Estimating Paint Requirements

IN estimating the amount of paint required for the home, the property owner is sometimes at a loss as to just the number of gallons required. While the quantity of paint required varies somewhat with the nature of the surface to be covered, and the conditions under which it is applied, yet the following method of measurement will serve as an accurate guide:

A good grade of prepared paint will cover at least 350 square feet to the gallon, two coats.

First, measure the distance around the house and multiply by the average height; then divide by 350 and the result will be approximately the number of gallons to buy. Of this quantity one-fifth will represent the paint required for trimmings, cornices, etc.

For blinds or shutters of average size, you will require one gallon of paint to each 12 pairs of blinds, two coats.

Mixing Concrete

A RICH mixture of 1 part cement, 1½ parts sand, and 3 parts broken stone or gravel, commonly called a 1:1½:3 mixture is used for columns of reinforced concrete buildings, for thin water-tight walls and under all similar conditions.

A standard mixture of 1 part cement, 2 parts sand, and 4 parts gravel or broken stone is used for reinforced concrete work of all kinds for water tanks, thin walls, etc.

Medium mixture of 1 part cement, 2 1-2 parts sand, and 5 parts broken stone or gravel is used for all concrete without reinforcing except for water-tight tanks, etc. Lean mixture of 1 part cement, 3 parts sand, and 6 parts broken stone or gravel is used for very heavy mass concrete where the loads are wholly compressive.

The requirements of good mixing are: (1) That every particle of sand and gravel be coated with cement paste, (2) that the cement, sand and stone be evenly distributed through the entire mass, and (3) that the whole mixture be of a uniform consistency.

Concrete must not be allowed to dry out too rapidly. The rapid drying out not only produces check cracks, but hinders the setting action of the concrete, making it weak. Floors and walks should be protected and kept moist for several days.

What Size Water Tank?

THE size water tank needed depends on the power used and whether the service is for the entire farm or for the house only. Hand-operated systems are applicable where small quantities are required for house use only, but in case water is wanted for livestock also, the use of a windmill, engine, electric motor, or hydraulic ram is necessary.

If a windmill is used the storage should be large enough for at least three days' supply to provide water in case of calm weather. Where the other sources of power are used the storage capacity need not exceed one day's supply. The following table gives approximate quantities of water required per day:

	Gal.
Each member of the family for all purposes will require	25-40
Each cow will require	12
Each horse will require	10
Each hog will require	2¼
Each sheep will require	2

The water consumption will vary from day to day and with the season. Fire protection should also be considered, and in determining the size of tank the maximum amount likely to be required should be provided.

For a family of 6 persons a 200-gallon supply should be sufficient if the water is used in the house only. On a farm where water is supplied to a family of 6 persons, 10 horses, 12 cows, 25 hogs, and 15 sheep, the daily storage supply should be at least 500 gallons, with whatever additional amount, if any, the farmer deems necessary for fire protection.

Pitch of Roofs

WHEN the distance of the peak of a roof above the roof plates equals one-half the width of the building, the roof has a half pitch. When it is one-fourth the roof has a quarter pitch, etc.

Roofs With Different Pitches

The length of rafters for the most common pitches can be found for any span by using the following figures:

For 1-2 pitch multiply span by .71
For 3-8 pitch multiply span by .625
For 1-3 pitch multiply span by .6
For 1-4 pitch multiply span by .56
For 1-5 pitch multiply span by .54
For 1-6 pitch multiply span by .53

To this length must be added the amount of projection of rafters at eaves, also the length for cutting.

To find the area of roof, multiply length of rafters by length of roof.

Example: To find the length of rafters and area of roof with 1-2 pitch for a building 24 feet wide and 40 feet long, allowing 1 foot overhang at sides and ends—24×.71= 17.04. Adding 1 foot for eaves makes the total length to be purchased 18 feet.

Length of building equals 40 feet, add 2 feet for overhang. 42×18=716 sq. ft. Total area 1,432 sq. ft.

Size and Capacity of Water Tanks

Material	Diameter	Height	Capacity
Steel	6.0 ft.	5.0 ft.	1,050 gallons
Steel	7.0 ft.	7.0 ft.	2,000 gallons
Galvanized iron	6.0 ft.	5.0 ft.	1,050 gallons
Galvanized iron	6.0 ft.	8.0 ft.	1,690 gallons
Galvanized iron	8.0 ft.	6.0 ft.	2,250 gallons
Cypress	6.0 ft.	5.5 ft.	1,160 gallons
Cypress	6.5 ft.	6.5 ft.	1,600 gallons
Cypress	7.5 ft.	6.5 ft.	2,150 gallons

Depreciation on Implements

HOW long a machine or implement will last depends on the carefulness of the farmer and his facilities for doing repair work. The following table gives the annual depreciation and the average life in years of some machines in common use. Do you get inside these figures, or do you run over them in practice?

	Anual Depreciation Per Cent	Average Life in Years
Binders, grain	7.91	12.5
Binders, corn	10.30	10.0
Cultivators	7.25	13.7
Disc Harrow	5.19	19.2
Drills	6.75	14.8
Fanning Mill	4.58	21.8
Gasoline Engine	7.35	13.5
Grain Tanks	3.47	28.8
Harrows, tooth	8.72	11.4
Harness, heavy	6.17	16.2
Hay Racks	7.76	12.8
Hay Rakes	7.80	12.8
Hay Loaders	11.78	8.05
Hay Tedders	4.84	20.7
Horse Weeder	5.71	17.5
Manure Spreader	11.67	8.5
Mowers	7.80	12.8
Planters, corn	*7.15	14.0
Plows, sulky	8.42	11.9
Plows, walking	6.09	16.4
Plows, gang	7.40	13.5
Reapers	8.13	12.3
Seeders	6.75	14.8
Threshing Machines	12.00	8.3
Wagons	4.89	20.5

Trouble Chart for Gasoline Engines

Loss of power—

Ignition: Spark occurring too late; spark weak because of partial short circuit or battery becoming exhausted; dirty spark plugs; poor connections; dirty timer; poor or broken wiring in case of magneto; breaker points worn, oily, or out of adjustment; commutator brush dirty or oily.

Fuel: Mixture too lean or too rich; supply pipe partly clogged; inlet valve not opening sufficiently, due to wear; water in gasoline; leaks around intake manifold.

Motor: Overheating in cylinder or bearings; gummy, inferior or insufficient oil; exhaust pipe partially clogged; governor out of adjustment; lack of compression, which may be due to worn, stuck, or broken piston rings; scored cylinder walls; leaks through and around head joints; valves sticking, worn, pitted, or not seating properly because of dirt; in cold weather, engine and cooling water too cold.

Misfiring—

Ignition: Weak batteries; poor connections; dirty timer; vibrator points pitted or dirty; dirty or cracked plugs, points of plug not properly spaced; make and break points not touching properly.

Fuel: Mixture too lean or too rich; gasoline passage partly clogged; water in gasoline.

Motor: Lack of compression; valves sticky or not working properly.

Pounding—

Ignition: Spark too early.

Motor: Red-hot carbon deposit in cylinder; loose bearings; tight piston, due to lack of oil or lack of cooling water; hot bearings; loose fly-wheel; very loose piston (piston slap).

Backfiring—

Ignition: Spark too late. (If motor backfires and stops, spark may be too far advanced); short circuit on primary wire; wires to wrong plugs.

Fuel: Weak mixture; occasionally too rich mixture.

Motor: Leaky or stuck intake valve; red-hot carbon deposits; leaky manifold or carburetor gasket.

Explosions in exhaust pipe—Often occur just after starting due to first charges not firing in cylinder and passing through into exhaust pipe, where burning gases from first few explosions will ignite them.

Ignition: Irregular ignition; poor spark, or very late spark.

Fuel: Mixture too lean or too rich.

Overheating—

Ignition: Spark too late, or very weak.

Fuel: Mixture too rich.

Motor: Insufficient lubrication; insufficient cooling water; circulation of cooling water impeded; pump not working properly; heavy carbon deposits in cylinder; water chamber coated from impure water.

Irregular speed—

Ignition: Loose conections, or partly broken wire; vibrator points rough, pitted, or improperly adjusted.

Fuel: Supply to carburetor irregular; dirt on needle valve.

Motor: Governor gummy, sticky, out of adjustment or badly worn; valves sticky.

Smoke—

Black smoke in exhaust indicates too rich a mixture. Bluish smoke indicates too much lubricating oil. Smoke from the crank case or open end of cylinder indicates leak past the piston; look for worn rings, rings stuck in grooves, or scoring on cylinder walls.

Finding Safe Load for Tractor

Example: How many 14 inch bottoms, plowing 6 inches deep, will 10 H. P. drawbar tractor pull in clover sod?

From example on draft of plow, the draft of each plow will be 588 lbs.

Authorities estimate that 1 H.P. is necessary to pull 150 pounds continuously. Hence a 10 H.P. drawbar tractor can pull 1500 lbs. Then, 1500÷588=2½ plows. Two plows will be a safe load.

Avoid overloading a tractor. It is sure to result in permanent injury. It is a much wiser policy to work the tractor up to capacity or a little under, and then take advantage of its ability to work long days or day and night. More work will be done by this method and the tractor will give more years of satisfactory service.

Draft of Plows in Different Soils

THE accompanying table from Chilton's Tractor Index gives the draft per square inch, and the draft required by a 14-inch plow bottom plowing 5 inches deep on level land:

Average Resistance of Soils

Soils	lbs. per sq. inch	lbs. per 14x6 inch furrow
Sandy loam	2-3	300-400
Corn stubble	3	350-400
Wheat stubble	4	400-450
Light clay	6	400-600
Medium clay	7	450-700
Heavy clay, good plowing condition	8	800-1,000
Sod on heavy clay, medium moisture	9	1,000-1,500
Gumbo—dry, hard	18	1,300-1,600

To reach an approximate figure as to the draft required for a certain size plow it is necessary, first of all, to know what the resistance is of the soil per square inch. Multiplying this figure by the cross sectional area of the furrow will give the approximate draft. Then by multiplying the draft of one plow by the number of bottoms will give the total draft.

The draft of a plow is slightly heavier on a grade. For each one per cent rise in grade, that is, one per cent in 100 feet, one per cent of the weight of the plows and tractor, or plows and team, should be added to the draft.

Non-alcoholic beverages are popular all over the United States, especially in California, Washington and Oregon, where each person consumes on an average $3.26 worth per year. People in the other states of the United States consume on an average $2.61 worth per year.

Horsepower for Each Operation

THE gasoline engine is now used on the farm for many purposes. The following list indicates the approximate amount of power required to operate different machines:—

Washing machine, ½ to 1 H. P.
Churn, ½ to ½ H. P.
Grindstone, ½ to 2 H. P.
Pump, ½ to 2 H. P.
Electric generator, 1 H. P., or more.
Feed mill, 3 H. P., or more.
Corn sheller, 2 H. P., or more.

Here's a Simple Way to Remove Hame Staple

EVERY farmer has had difficulty in removing a hame staple. Here's a simple method:—

First, place one-half of the staple in the corner of a vise. Grasp the end of the hame and move it back and forth a few times. If the staple is firmly held it will break quickly.

Second, without taking the staple from the vise, grasp the end of the hame and move it up and down. This will break the half of the staple off close to the hame and below the shoulder.

Third, do the same with the other half of the staple. If the staple is not tapered, the broken parts remaining in the hame may be driven out. If the staple is tapered, these broken parts may be driven far enough so that the riveted ends will project and can be cut off; and then these tapered parts can be driven back out.

Choosing Right Size Electric Plant

IT IS easy to figure out the size plant you will actually need, and it is very unwise to deny yourself and family the fullest use of electricity by failing to install a plant with sufficient capacity.

The first step is to estimate as correctly as possible the amount of power required for all purposes. The unit of electrical power is known as the "watt" and for this reason the estimate should be made in terms of watts. A list should be prepared showing the number and size of all desired lights in the house, barns, outbuildings, woodshed, driveways, etc. The sizes of the lamps usually installed are 25, 40, and 60 watts. Four 25-watt lamps call for 100 watts and three 60-watt lamps make it necessary to provide 180 watts and so on.

It is easy to estimate the necessary number of lights needed in the house, barn, outbuildings, driveways, etc., but it is a rather difficult problem to figure out the consumption of electricity by household appliances and different farm machines. The following is an estimate of consumption of motors, such as are used for washing machines and for other small purposes as well as larger:

1-12 Horsepower	100 watts
1-6 Horsepower	202 watts
1-4 Horsepower	288 watts
1-3 Horsepower	348 watts
1-2 Horsepower	515 watts
1 Horsepower	932 watts

The following is an approximate consumption of electricity by household appliances and farm machines:

Device	Watts
8-inch electric fan	20
16-inch electric fan	70
3-pound flatiron	250
6-pound flatiron	550
Coffee percolator	500
Small hot water boiler heater	1,500
Milking machine	750
Cream separator	250
Wood saw (small size)	1,000-2,000
Washing machine	250
Grindstone	400
Water pump (75 ft., 160 gal. per hr.)	250-500
Churn (10-gallon barrel)	250
Corn sheller	750

After all lights and other uses have been enumerated with their corresponding watts consumption, the sum total of power units may be obtained. Of course, it is also necessary to figure on the number of lights and the appliances and machines that will be in use at the same time. If you burn two 40 and three 60-watt lights at the same time and use an electric iron and electric fan, the current consumption will be approximately 1,000 watts.

Draft of Loaded Wagons

THE draft of a wagon is made up of axle friction, rolling resistance (contact of wheel with road) and grade resistance. The greatest of these under average conditions is rolling resistance.

The following table gives the draft per ton of load on a four-wheel wagon on a level road and for various percentages of grades. This data is compiled for different road surfaces:—

Grade	Macadam, Lbs.	Gravel or Lbs.	Sand or Earth, Lbs.
Level	50	140	240
1 per cent	70	160	260
2 per cent	90	180	280
5 per cent	150	240	340
10 per cent	250	340	440
15 per cent	350	440	540

This table shows that the better the road the greater the increase of draft on upgrades. On a level road the better the road the lighter the draft.—*From Kent, Gen. Morin, Rankine, Trautwine and Haswell.*

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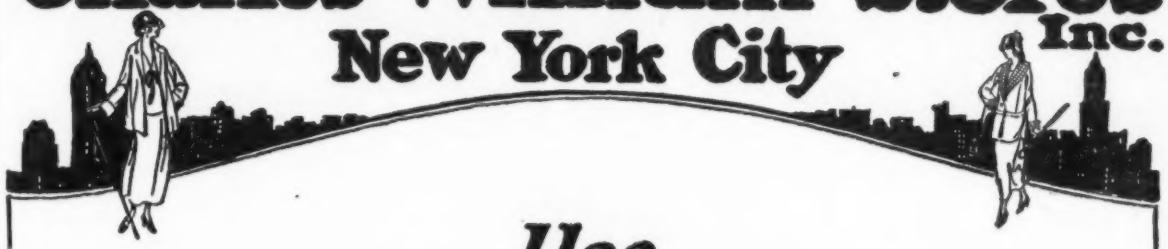

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Carolinas-Virginia Farm Leaders

Virginia's Agricultural Officials

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Virginia Polytechnic Institute (State Agricultural College)—Julian A. Burruss, President.

Extension Division Staff—John R. Hutcheson, director; Chas. G. Burr, state boys' club agent; Mrs. M. M. Davis, state home demonstration agent; Frank Buchanan, dairy husbandman; J. P. Keen, animal husbandman; G. W. Patterson, Jr., agronomist; E. R. Price, editor; G. S. Ralston, horticulturist; Chas. F. Seitz, agricultural engineer; A. G. Smith, Jr., specialist in vegetable gardening; C. C. Taylor, marketing specialist; A. F. Treakle, poultry husbandman; Miss Lula V. Walker, home economics specialist, all at Blacksburg, Va. District agents—J. G. Bruce, Lynchburg; F. S. Farrar, Jetersville; J. H. Quisenberry, Fredericks Hall; W. C. Shackleford, Proffit; B. A. Warriner, Blacksburg.

State Experiment Station Staff—J. A. Burruss, president; A. W. Drinkard, Jr., director; H. L. Price, horticulturist; W. B. Ellett, chemist; W. J. Schoene, entomologist; F. D. Fromme, plant pathologist and bacteriologist; G. S. Ralston, field horticulturist; R. E. Hunt, animal husbandman; C. W. Holdaway, dairy husbandman; J. J. Vernon, agricultural economist; T. B. Hutcheson, agronomist.

Virginia Crop Improvement Association—President, Harvey S. Clapp, Accotink; secretary-treasurer, T. C. Maurer, Blacksburg; clerk, Miss Hazel Weimer, Blacksburg.

Eastern Shore of Virginia Produce Exchange—Secretary, A. J. McMath, Onley.

Virginia State Dairymen's Association—President, J. V. Nichols, Percelville; secretary-treasurer, P. A. Buchanan, Buacksburg.

State Farm Bureau Federation—President, H. C. Stuart, Elk Garden; secretary, Frank B. Nelson, Roanoke.

Virginia State Horticultural Society—R. G. Vance, Waynesboro, president; Wm. P. Massey, Winchester, secretary.

Virginia State Farmers' Union—President, Geo. A. Lambert, Rural Retreat; secretary, Geo. H. Bowles, Lynchburg.

North Carolina Agricultural Officials

State Department of Agriculture—Commissioner, W. A. Graham; secretary, K. W. Barnes; veterinarian, Wm. Moore; botanist, J. L. Burgess; agricultural chemist, vacant.

State College of Agriculture—President, E. C. Brooks; dean of agriculture, B. W. Kilgore.

North Carolina Agricultural Experiment Station and Extension Service—B. W. Kilgore, director; C. B. Williams, agronomy; Franklin Sherman, entomology; animal industry, vacant; C. D. Matthews, horticulture; F. A. Wolf, plant diseases; B. F. Brown, markets; James M. Gray, farm demonstration; Mrs. Jane S. McKimmon, home demonstration; E. R. Raney, farm engineering, all at Raleigh.

State Farmers' Union—President, R. W. H. Stone, Greensboro; secretary-treasurer, Mrs. J. M. L. Lyerly, Winston-Salem.

North Carolina Farm Bureau Federation—President, W. H. Pharr, Charlotte; secretary, I. N. Paine, Statesville.

North Carolina Farmers' Convention—President, R. W. Scott, Haw River; secretary, J. M. Gray, State College Station, Raleigh.

North Carolina Agricultural Society (State Fair(— President, Mrs. Edith Vanderzilt, Biltmore; secretary, H. M. London, Raleigh.

North Carolina Dairymen's Association—President, Mrs. J. F. Stephens, Greensboro; secretary-treasurer, A. C. Kimrey, State College, Raleigh.

North Carolina Poultry Association—President, A. A. Ray, Siler City; secretary, B. F. Kaupp, State College, Raleigh.

North Carolina Horticultural Society—President H. P. Corwith, Saluda; secretary, Bolling Hall, Waynesville.

North Carolina Farmers' State Alliance—President, Eddie Cullipher, Merry Hill; secretary-treasurer, T. F. Cherry, Rocky Mount.

South Carolina Agricultural Officials

Commissioner of Agriculture — B. Harris, Columbia, S. C.

Officers of Extension Service—Director, W. W. Long; Assistant Director, D. W. Watkins; First District Agent, A. A. McKeown, Rock Hill; Second District Agent, T. B. Young, Florence; Third District Agent, A. H. Ward, Aiken; Animal Husbandman, L. V. Starkey; Dairy Husbandman, J. P. LaMaster; Agronomist, C. P. Blackwell; Horticulturist, C. C. Newman; Poultry Husbandman, D. H. Hall; Entomologist, A. F. Conradi; Plant Pathologist, H. W. Barre; Marketing Agent, F. L. Harkey; Agent of Boys' Club Work, B. O. Williams; Agricultural Editor A. B. Bryan.

South Carolina Experiment Station—Director and Botanist, H. W. Barre; Horticulturist, C. C. Newman; Entomologist, A. F. Conradi; Consulting Veterinarian, R. O. Feeley; Agronomist, C. P. Blackwell; Agricultural Editor, A. B. Bryan; Animal Husbandman, L. V. Starkey; Dairy Husbandman, J. P. LaMaster; Chemist, R. N. Brackett; Superintendent Pee Dee Station, R. E. Currin, Florence; Superintendent Coast Station, J. A. Riley, Summerville.

State Agricultural and Mechanical Society—President, R. M. Cooper, Jr., Wisacky; Manager, D. F. Efird, Columbia. (This organization is the promoter of the State Fair).

South Carolina Potato Growers' Association—T. B. Young, Florence, president and general manager.

South Carolina Poultry Breeders' Association.—President, B. E. Adams, Charleston; Secretary, H. H. McGill, Columbia, S. C.

Agricultural Society of South Carolina—President, S. G. Stoney, Charleston; Secretary, W. M. Frampton, Charleston.

South Carolina Dairymen's Association—President, Frank Hampton, Columbia; Vice-president, J. P. LaMaster, Clemson College.

South Carolina Land Settlement Board—Chairman, Richard I. Manning, Columbia; Secretary, W. H. Mills, Clemson College.

State Warehouse Commission—J. C. Rivers, Columbia.

All of the above are at Clemson College unless otherwise stated.

Your County Agent: His Name and Address

FOLLOWING are names of the official farm demonstration agents in each county in North Carolina, South Carolina, and Virginia having agents at work as we prepare this report. Following is the list—the name of the county being given first in alphabetical order, followed by the name of the agent. *In every case where no postoffice address is given, the address of the agent is at the county seat, and a letter addressed to him there will reach him promptly:*

Virginia

ALBEMARLE, S. S. Teel; Amelia, C. W. Richards; Amherst, O. B. Ross; Appomatox, W. H. Byrne; Augusta, P. C. Manley; Bath, J. N. Jones; Bedford, E. C. Turner; Bland, H. P. Marshall; Botetourt, D. V. Wiley; Brunswick, J. B. Lewis; Buckingham, G. C. Harris, Sheppards; Campbell, Bruce Anderson; Carrol, Wm. C. LaRue, Woodlawn; Charles City, V. B. Perry, Providence Forge; Charlotte, H. E. McSwain; Chesterfield, T. D. Burfoot, Richmond, RFD 8; Clarke, R. B. Crawford, Front Royal; Craig, W. O. Martin; Culpeper, B. P. Williams; Dinwiddie, K. N. Ellis, Petersburg; Elizabeth City, H. S. Lippincott, Newport News; Essex, D. H. Crosby; Fairfax, H. B. Derr; Giles, C. D. Lewis; Gloucester, J. E. Trevathan; Grayson, D. T. Painter; Greensville, J. W. Rogers; Halifax, W. W. Wilkins, Turbeville; Hanover, J. C. Stiles, Ashland; Henrico, W. L. Kirby; Henry, T. J. Thompson, Jr.; James City, E. M. Slauson; King & Queen, J. D. Hutchinson, Jr., Walkerton; King George, L. M. Walker, Jr.; King William, J. D. Hutchinson, Jr., Walkerton; Loudoun, J. R. Lintner; Louisa, J. S. Wills; Lunenburg, E. G. Stokes, Kenbridge; Mathews, J. E. Trevathan, Gloucester; Mecklenburg, N. H. Williams, Jr., Chase City; Montgomery, J. D. Wysor; Nansemond, P. S. Blandford, Suffolk, RFD; Nelson, E. H. Anderson; New Kent, V. B. Perry, Providence Forge; Norfolk, F. L. Portlock, Berkeley Sta., Norfolk; Northumberland, C. W. Hubbard; Nottoway, R. B. Oliver, Jr., Crewe; Orange, E. V. Breeden, Gordonsville; Patrick, S. L. Cole; Pittsylvania, Gordon Elcan; Powhatan, Frank Michaux, Jordan's Store; Prince George, E. C. Jones, City Point; Princess Anne, H. W. Ozlin, Lynnhaven; Prince William, W. L. Browning; Pulaski, E. C. Grigsby; Rockbridge, M. G. Lewis; Rockingham, C. W. Wampler; Shenandoah, H. L. Moore; Smyth, Lee M. Cole; Spotsylvania, W. R. Linthicum; Stafford, J. W. C. Catlett; Surry, O. M. Cockes, Elberon; Sussex, W. T. Parker, Homeville; Warren, R. B. Crawford; Warwick, H. S. Lippincott, Newport News; Washington, W. E. Schmidt, Abingdon; Westmoreland, Carter Chase; Wythe, J. E. Delp; York (lower end of) H. S. Lippincott, Newport News; York (upper end of) W. H. Porter, Toano.

Colored Agents—Abemarle, C. G. Greer; Amelia, C. C. Archer, Chula, RFD No. 1; Appomattox, P. W. Callahan, Concord; Buckingham, J. W. Logan, Dillwyn, RFD No. 1; Brunswick, H. C. Green; Caroline, W. H. Craighead; Charles City, R. E. F. Washington, Roxbury; Charlotte, J. F. Wilson, Keysville; Chesterfield, R. F. Jones, Ettericks, V. N. I. I.; Dinwiddie, A. W. Pegram, Dinwiddie RFD No. 2; Goochland, L. W. Bradley, Perkinsville; Gloucester, R. D. Lemon, Sassafras; Greenesville, Randolph Ruffin, N. Emporia, RFD No. 1; Isle of Wight, F. A. Bowman, Magnet; Lunenburg, D. H. Smith; Mecklenburg, N. D. Morse, Baskerville; Nansemond, D. C. Jones; Nottoway, G. E. Oliver, Crew; Powhatan, W. H. Walton; Prince Edward, J. W. Lancaster; Prince George, Alexander Scott, Prince George, RFD No. 1, Box 49; Southampton, A. B. Doles, Zuni, RFD No. 2; Surry, W. H. George, Elberon, RFD No. 1; Sussex, M. D. Jones, Stony Creek.

North Carolina

ALAMANCE, W. Kerr Scott, Haw River; Alexander, U. A. Miller; Anson, J. W. Cameron, Polkton; Avery, C. B. Baird; Beaufort, F. W. Risher; Bladen, R. K. Craven, Clarkton; Brunswick, J. E. Dodson, Supply; Buncombe, L. D. Thrash; Burke, R. L. Sloan; Cabarrus, R. D. Goodman; Caldwell, D. W. Roberts; Carteret, A. H. Harris; Caswell, J. L. Dove; Catawba, J. W. Hendricks; Cherokee, H. H. Ellis; Chowan, N. K. Rowell; Clay, W. R. Anderson; Cleveland, R. E. Lawrence; Columbus, J. T. Lazar; Cumberland, Colin McLaurin; Craven, C. B. Faris; Currituck, J. E. Chandler; Davie, Geo. Evans; Duplin, L. L. McLendon; Durham, agent to be appointed; Edgecombe, Zeno Moore, Whitakers; Forsyth, R. W. Pou; Gaston, L. B. Altman; Granville, J. H. Blackwell; Greene, T. B. Brandon; Guilford, E. B. Garrett; Halifax, C. E. Littlejohn, Scotland Neck; Harnett, H. A. Edge; Henderson, E. F. Arnold; Hertford, agent to be appointed; Iredell, R. W. Graeber; Jackson, R. W. Gray; Johnston, N. B. Stevens; Jones, E. F. Fletcher; Lee, E. O. McMahon; Lenoir, C. M. Brickhouse; Lincoln, J. G. Morrison; McDowell, W. L. Smarr; Macon, John V. Arrendale; Madison, agent to be appointed; Martin, T. B. Brandon; Mecklenburg, Kope Elias; Mitchell, E. D. Bowditch, Toecane; Montgomery, A. R. Morrow; Moore, M. W. Wall; Nash, H. M. Parker; New Hanover, J. P. Herring; Pamlico, R. W. Galphin; Pasquotank, G. W. Falls; Pender, C. M. James; Perquimans, L. W. Anderson; Pitt, R. B. Reeves; Polk, J. R. Sams; Randolph, Ewing S. Millsaps; Richmond, W. H. Barton; Robeson, O. O. Dukes; Rowan, W. G. Yeager; Rockingham, F. S. Walker, Reidsville; Rutherford, F. E. Patton; Scotland, Stanly, O. H. Phillips; Swain, Frank Fleming; Transylvania, Lewis A. Ammon; Union, J. T. W. Broom; Vance, J. C. Anthony; Wake, J. C. Anderson; Washington, R. W. Johnston; Watauga, J. B. Steele; Wayne, A. K. Robertson; Wilkes, A. G. Hendren, Straw; Wilson, B. T. Ferguson; Yadkin, D. H. Osborne; Hoke, L. B. Brandon.

Colored Agents—Anson, J. A. Colson, Ansonville; Alamance, J. W. Jeffries, Mebane; Bertie, J. C. Hubbard; Duplin, R. J. Johnson, Warsaw; Gates, C. S. Mitchell; Greene, D. D. Dupree, Farmville; Guilford, H. E. Webb; Harnett, A. D. Herring, Dunn; Hertford, W. D. Brown; Johnston, L. R. Sanders; Mecklenburg, I. D. L. Torrence; Robeson, S. T. Brooks; Rowan, J. D. Carlton; Sampson, G. W. Herring; Wake, L. H. Roberts; parts of Columbus and Bladen, J. W. Mitchell, Whiteville, Route 1; parts of Pitt, Edgecombe, and Martin, Oliver Carter, Parmele; parts of Forsyth, Davie, and Yadkin, E. C. Lackey, Winston-Salem.

South Carolina

Abbeville, C. A. Rose; Aiken, C. L. Gowan; Allendale, Z. D. Robertson; Anderson, S. M. Byars; Beaufort, C. L. Baxter; Berkeley, J. H. Harvey, Pinopolis; Calhoun, C. L. McCaslan; Charleston, G. C. McDermid; Cherokee, S. C. Stribling; Chester, H. K. Sanders; Chesterfield, W. J. Tiller; Clarendon, F. M. Rast; Colleton, H. M. Kinsey; Darlington, A. H. Ward; Dillon, S. W. Epps, Latta; Dorchester, T. M. Cathcart; Fairfield, R. H. Lemmon; Florence, J. W. McLendon; Georgetown, M. M. McCord; Greenville, W. R. Gray; Greenwood, E. P. Gulledge; Hampton, Gustavus York; Kershaw, J. W. Sanders; Lancaster, W. F. Howell; Laurens, C. L. Vaughn; Lee, J. P. Quinerly; Lexington, J. W. Shealy, Ballentine; McCormick, J. C. Miller; Marion, O. E. Baker; Marlboro, G. H. Stewart, Jr.; Newberry, T. M. Mills, Prosperity; Oconee, Rudolph Farmer; Pickens, T. A. Bowen; Richland, J. R. Clark; Saluda, Claude Rothell; Spartanburg, Ernest Carnes; Sumter, J. F. Williams; Union, W. D. Wood; York, L. G. Prentice, Rock Hill.

Colored Agents—Anderson, W. B. Harrison; Bamberg, E. D. Jenkins; Beaufort, Benjamin Barnwell, Frogmore; Greenwood, W. H. Hilyard; Orangeburg, G. W. Daniels; Richland, J. E. Dickson, Hopkins; Spartanburg, W. C. Bunch; Sumter, Jason Maloney; Darlington, Chas. Disher.

Co-operative Marketing Leaders

FOLLOWING are the directors and officers of the leading coöperative marketing associations in North Carolina, South Carolina, and Virginia; look over the list and keep in touch with the officers and executive committeemen and also the director who represents your district.

NORTH CAROLINA COTTON GROWERS' CO-OPERATIVE ASSOCIATION

W. M. Sanders, president; R. W. Christian, vice-president; U. B. Blalock, general manager; A. E. Bing, secretary-treasurer; Lawrence McRae, sales manager; H. H. B. Mask, director field service department; D. D. Traywick, director warehouse department. All these are at Raleigh except Mr. Sanders who is at Smithfield.

Executive Committee: W. M. Sanders, Smithfield; R. W. Christian, Manchester; L. D. Robinson, Wadesboro; A. McEachern, Raeford; Dr. G. M. Pate, Rowland.

Directors

1. Warren, Halifax, Northampton, Bertie, Martin, Chowan, Hertford—W. A. Pierce, Weldon.
2. Nash, Edgecombe—W. W. Eagles, Tarboro.
3. Onslow, Jones, Pitt, Craven, Beaufort, Pamlico, Washington, Carteret—H. V. Staton, Bethel.
4. Duplin, Wayne, Lenoir, Greene—E. A. Stevens, Goldsboro.
5. Johnson, Wilson — W. M. Sanders, Smithfield.
6. Lee, Harnett, Wake, Franklin, Chatham, Durham—F. M. McKay, Duke.
7. Columbus, Bladen, Cumberland, Sampson, Pender—R. W. Christian, Manchester.
8. Robeson—Dr. G. M. Pate, Rowland.
9. Richmond, Moore, Scotland, Hoke, Montgomery—A. McEachern, Raeford.
10. Cleveland, Cabarrus, Rutherford, Gaston, Union, Iredell, Rowan, Stanly, Mecklenburg—A. S. Spear, Boonville.

Public Director, U. B. Blalock, Raleigh.

SOUTH CAROLINA COTTON GROWERS' CO-OPERATIVE ASSOCIATION

Harry G. Kaminer, president; Harold C. Booker, secretary; W. R. Scarborough, treasurer; Jas. L. Respess, office manager; Horace Emerson, traffic manager; Arthur Mazyck, sales manager. All at Columbia.

Directors

1. E. Wallace Evans, Bennettsville—representing Marlboro and Chester counties.
2. J. Wade Drake, Anderson — Greenville, Anderson, Oconee, Pickens.
3. J. S. Craig, Laurens—Spartanburg, Laurens, Newberry, Union, Cherokee.
4. J. P. MacNair, Aiken—Abbeville, Greenwood, Saluda, Aiken, Edgefield, McCormick, Bamberg, Allendale.
5. B. F. Williamson, Darlington—Darlington, Lee.
6. A. V. Bethea, Dillon—Dillon, Marion, Florence, Horry.
7. R. C. Hamer, Eastover—Richland, Lexington, Calhoun.
8. A. R. Johnson, St. George—Orangeburg, Colleton, Bamberg, Dorchester, Hampton, and Berkeley.
9. L. D. Jennings, Sumter—Sumter, Clarendon, Williamsburg.
10. R. B. Caldwell, Chester—Chester, York, Fairfield, Kershaw, Lancaster.

Public Director, H. G. Kaminer, Columbia.

TOBACCO GROWERS' CO-OPERATIVE ASSOCIATION

Executive Officers — George A. Norwood, Goldsboro, N. C., president; Joseph M. Hurt, Blackstone, Va., vice-president; Bright Williamson, Darlington, S. C., vice-president; Oliver J. Sands, Richmond, Va., executive manager; James H. Craig, Richmond, Va., treasurer; M. O. Wilson, Raleigh, N. C., secretary; R. R. Patterson, Richmond, Va., manager bright leaf department; F. D. Williams, Richmond, Va., manager dark leaf department; T. C. Watkins, Richmond, Va., director of warehouses; Aaron Saprio, general counsel.

Executive Committee: Oliver J. Sands, chairman, Richmond, Va.; G. A. Norwood, Goldsboro, N. C.; Joseph M. Hurt, Blackstone, Va.; Bright Williamson, Darlington, S. C.; S. F. Austin, Nashville, N. C.; J. A. Brown, Chadbourn, N. C.; N. H. Williams, Chase City, Va.

North Carolina Directors

District No. 1 (Columbus, Robeson, Bladen, Brunswick)—J. A. Brown, Chadbourn.

2. Wayne, Duplin, Sampson, Onslow, Pender—George A. Norwood, Goldsboro.
3. Greene, Lenoir—J. Y. Joyner, LaGrange.
4. Pitt, Craven, Jones, Carteret, Pamlico—John Coward, Ayden.
5. Edgecombe, Martin, Beaufort, Bertie, Hertford—J. Vines Cobb, Pinetop.
6. Nash, Wilson—S. F. Austin, Nashville.
7. Franklin, Vance, Warren, Halifax—Clyde P. Harris, Mapleville.
8. Granville, Person—C. T. Hall, Woodsdale.
9. Wake, Johnston—R. B. Whitley, Wendell.
10. Durham, Orange, Alamance, Chatham, Lee, Harnett, Moore, Montgomery, Hoke, Richmond—J. R. McQueen, Lakeview.
11. Rockingham, Caswell, Guilford, Randolph—R. H. Montgomery, Reidsville.
12. Surry, Stokes, Yadkin, Forsyth, Davie, Iredell, Alexander, Wilkes, Davidson, Caldwell—A. S. Spear, Boonville.

Virginia Directors

13. Patrick Henry, Franklin, overrun from Pittsylvania—W. R. West, Axton.
14. Pittsylvania—F. O. McCormick, Java.
15. Halifax — T. C. Watkins, Jr., South Boston.
16. Mecklenburg and overrun from Halifax—N. H. Williams, Chase City.
17. Brunswick, Greenesville, Lunenburg, Dinwiddie, Nottoway, Amelia, Chesterfield—Joseph M. Hurt, Blackstone.
18. Prince Edward, Charlotte—M. O. Wilson, Keysville.
19. Campbell, Appomattox, Bedford, Amherst—C. W. Wingfield, Naruna.
20. Nelson, Rockingham, Cumberland, Powhatan, Goochland, Fluvanna, Louisa, Hanover, Caroline—W. S. Garrett, Bula.

South Carolina Directors

21. Marlboro, Dillon, Marion, Florence, Horry, Georgetown—T. B. Young, Florence.
22. Williamsburg, Berkely, Darlington, Lee, Sumter, Clarendon, Dorchester, Orangeburg, Edgefield, Bamberg, Saluda, etc. — Bright Williamson, Darlington.

Public directors: Oliver J. Sands for Virginia, Clarence Poe for North Carolina, and E. C. Epps for South Carolina.

Officers Peanut Growers' Association

THE Peanut Growers' Association of Virginia and North Carolina is making an excellent record this season. Like the cotton and tobacco marketing associations, it made mistakes in getting started, but has learned from these mistakes and is now on a better basis than ever before. It will probably receive 50 per cent more peanuts than it expected when the season began. Following is the present list of officers of the Peanut Growers' Association:

Officers—J. Rives Worsham, General Manager, Norfolk, Va.; Wm. Albert Gwaltney, President, Spring Grove, Va.; S. P. Cross, Vice Pres., Gatesville, N. C.; W. C. Manning, Secretary, Williamston, N. C.; W. J. Story, Chairman of the Board, Courtland, Va.

Executive Committee—Wm. Albert Gwaltney, E. Frank Story, L. H. Brantley, S. P. Cross, H. J. Vann.

Other Directors—J. O. Cutchin, John Evans, Richmond Maury, A. W. Holt, W. J. Story, J. D. Woodard, John R. Lawrence, R. O. Blanchard, B. B. Howell, B. B. Everett, C. J. Shields, O. K. Taylor, W. F. Outland, J. H. Leggett, W. C. Manning

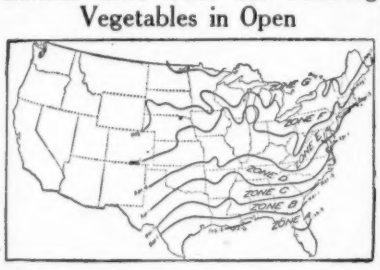
Seeds for a Garden to Supply a Family of Four

(U. S. Dept. Agriculture)

Bean—	
Bush Lima	1 pint
Pole Lima	1 pint
Snap	1 to 2 quarts
Beet	4 ounces
Cabbage—	
Early	1 packet
Late	½-ounce
Carrot	1 ounce
Cauliflower	1 packet
Celery	1 packet
Corn, sweet	1 to 2 pints
Cucumber	1 ounce
Eggplant	1 packet
Kale	2 ounces
Lettuce	½-ounce
Melon—	
Muskmelon	1 ounce
Watermelon	2 ounces
Onion sets	4 to 6 quarts
Pea, garden	4 to 6 quarts
Parsley	1 packet
Parsnip	½-ounce
Radish	1 ounce
Salsify	1 ounce
Spinach—	
In spring	1-4 pound
In fall	½-pound
Squash—	
Hubbard	1 ounce
Summer	1 ounce
Tomato—	
Early	1 packet
Late	1-4 ounce
Turnip	2 to 3 ounces

It is not supposed that any family will desire to grow all of the vegetables listed, nor will all families require the same amount of any crop, but the estimates given will be a guide. For the ordinary requirements the entire supply of seeds of snap beans, peas, beets, sweet corn, lettuce, radishes, and beets should not be planted at one time, but successive plantings should be made at intervals of two to four weeks.

Earliest Safe Date for Planting Vegetables in Open



Outline map showing zones based on the average date of the last killing frost in spring. The time of planting the various tender vegetables in the different zones is determined by the dates given on this map.

Latest Safe Planting Dates for Vegetables in Open

Crop.	Zone B.	Zone C.
Bean, snap	Oct. 1 to 15	Sept. 15 to 30
Beet	do	do
Cabbage		Sept. 1 to 15
Carrot		do
Cauliflower		do
Celery		Oct. 1 to 15
Corn, sweet		Aug. 15 to 30
Cucumber		do
Kale		Oct. 15 to Nov. 15
Lettuce		do
Mustard		do
Parsley		do
Pea		do
Potato:		
Irish		Aug. 15 to 30
Sweet	Aug. 15	Aug. 1 to 15
Radish		Oct. 15 to 30
Spinach		do
Tomato		Aug. 15 to 30
Turnip		Oct. 15 to 30

Crop	Zone D.	Zone E.
Bean, snap	Aug. 15 to 30	Aug. 1 to 30
Beet	Aug. 1 to 30	July 15 to Aug. 15.
Cabbage	Aug. 15 to Sept. 1	do
Carrot	do	do
Cauliflower	Aug. 1 to Sept. 1.	July 1 to Aug. 1
Celery	Sept. 1 to 30	do
Corn, sweet	Aug. 1 to 15	July 15 to Aug. 15.
Cucumber	do	
Kale	Oct. 1 to 30	Sept. 1 to 30
Lettuce	Oct. 1 to 15	do
Mustard	do	do
Parsley	do	do
Pea	do	Aug. 15 to Sept. 15
Potato:	do	
Irish	Aug. 1 to 15	July 1 to 30
Sweet	July 15 to 30	June 1 to 30
Radish	Oct. 1 to 15	Aug. 15 to Sept. 30
Spinach	do	do
Tomato	July 15 to Aug. 15	July 1 to 30
Turnip	Oct. 1 to 15	Aug. 15 to Sept. 30

The Progressive Farmer December 15, 1923

Fertilizer for Delta Soils

HEREWITH is given a table showing the results of a fertilizer experiment on Delta land in Mississippi County, Arkansas. I consider this the best fertilizer experiment I ever conducted, since the soil is more uniform than commonly found where work of this kind is being done. Various combinations of fertilizing materials were used in order to try and find the best mixture to use in order to get the most profitable yields of cotton on the Lee Wilson plantation. The field was planted with Express cotton seed April 25. Every sixth plot was left unfertilized as a check.

MR. HART

Plot No.	Kinds and pounds of fertilizer per acre: 16% acid phosphate	15% nitrate of soda	12.5% kainit	20% sulphate of ammonia	Yield in pounds of seed cotton per acre: 1st picking Sept. 13	2nd picking Oct. 12	3d picking Nov. 15	Total yield
1	....	....	....	....	487	203	184	874
2	400	....	....	....	415	276	280	971
3	300	....	100	....	425	233	208	866
4	300	50	....	....	463	250	332	1045
5	200	....	200	....	441	244	320	1005
6	200	50	100	....	448	251	272	971
7	....	....	....	....	424	213	252	889
8	200	100	....	....	557	323	244	1124
9	100	....	300	....	416	279	240	935
10	100	50	200	....	542	288	290	1120
11	100	100	100	....	561	313	344	1126
12	100	150	....	....	607	252	202	1061
13	....	....	....	....	497	245	252	994
14	....	....	400	....	535	255	360	1150
15	....	50	300	....	650	332	294	1276
16	....	100	200	....	787	338	306	1431
17	....	150	100	....	775	427	300	1502
18	....	200	....	....	882	523	370	1774
19	....	....	....	....	617	320	264	1201
20	....	....	....	150	779	354	210	1343
21	200	....	....	75	711	267	180	1162
22	100	....	100	75	748	229	272	1249
24	....	....	100	112.5	696	224	294	1214
24	....	200	....	....	669	264	292	1225
25	....	....	....	....	560	380	194	1134

No one can fail to note the uniformly good results obtained from the use of nitrogen. Especially is this true where nitrate of soda was used. It seems to be superior to the sulphate of ammonia. Two hundred pounds alone of nitrate applied to plot No. 18 showed an increased yield of 573 pounds.

It is interesting to note how the nitrogen increased the yields at first and second pickings.

The fertilizer was all applied by hand directly on the beds before planting, except plot 24, which received 200 pounds of nitrate of soda as a side dressing, May 29. The increased yield is not so great as when applied before planting, and shows that the earlier application is better.

The outstanding feature of the combinations is that mixtures of nitrate of soda and kainit, which contains potash, gave better results than did the same proportion of nitrate and acid phosphate. Four hundred pounds of kainit alone gave a better increase than did the same amount of acid phosphate. The kainit delayed germination of the seed several days but did not impair their vitality. Likewise 200 pounds kainit, 50 pounds nitrate, and 100 pounds phosphate; 50 pounds nitrate and 100 pounds kainit. We must infer that nitrogen and potash are the most deficient elements of plant food in soil where these experiments were conducted, and all fertilizers used should run high in these important elements.

As a matter of fact, nitrate of soda gave the largest increase per acre and the most profitable returns. It seems, therefore, that Delta planters are justified in using this material exclusively. However, we must recognize the fact that these are the results of only one year and it is possible that in years to come the residual effect of these applications may give entirely different results. We also recognize the fact that these data are not applicable to all conditions, and they are published so that those who are farming similar soil may study them and draw their own conclusions.

Ask your own Farm Paper.
Ask your County Agent.
Ask your Experiment Station.
Ask your successful neighbor.
Ask anybody who knows how to grow

COTTON

under weevil conditions. The answer will be about the same thing

Plant Selected Early Varieties
Plant Early and Use

NITRATE OF SODA

200 pounds to the acre
at planting time, or half at planting time and half when chopping out.

Read my Free Bulletins on Cotton and other crops. If you are not receiving them and want them, send me your name and address and to identify this advertisement add the number 3807

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Practical Hints for the Business Farmer

Federal Land Banks: How to Borrow From Them

FOR loans on land or for permanent farm improvements, consult the Federal Land Bank that serves your state. The following banks serve the states named:

Federal Land Bank of Baltimore—Maryland and Virginia.

Federal Land Bank of Columbia, S. C.—North Carolina, South Carolina, Georgia and Florida.

Federal Land Bank of Louisville—Kentucky and Tennessee.

Federal and Bank of New Orleans—Louisiana, Mississippi and Alabama.

Federal Land Bank of St. Louis—Missouri and Arkansas.

Federal Land Bank of Wichita—Kansas and Oklahoma.

Federal Land Bank of Houston—Texas.

For full information simply address "Federal Land Bank" in the city just mentioned as having the Land Bank that serves your state. The following additional rules are presented for the guidance of our readers:

1. How to Borrow—You must join the nearest "national farm loan association" or help organize one if there is none near you. To find out whether there is one near you, if you do not know, address the Federal Land Bank of your district (see list).

2. A "National Farm Loan Association" consists simply of ten or more farmer-borrowers organized in the form directed by the Federal Farm Loan Board.

3. Size and Term of Loan—No one can get a loan for more than $25,000 or less than $100, or for less than five or more than forty years.

4. Limitations—No loan may be made for more than 50 per cent of the value of the land mortgaged and 20 per cent of the value of the permanent insured improvements upon it.

5. Farmers Only—Borrowers must be, or about to become, the owner of the land offered as security, and engaged or about to become engaged, in its cultivation.

6. Interest Rate—The interest rate is 6 per cent with 1 per cent on the principal, or a total payment of 7 per cent, payable semi-annually. This 7 per cent per annum will discharge the entire debt, principal and interest, in thirty-three years. The borrower, however, has the option to pay the whole amount or any part thereof after five years.

7. Amortization—Each borrower pays back each year a certain amount to apply on principal besides interest. This system is known as "amortization." For example, a $1,000 debt at 6 per cent interest may be paid off, interest and all by paying $100 a year for sixteen years, or $90 a year for nineteen years, $80 a year for twenty-four years, or $75 a year for twenty-eight years.

8. For What Purposes One Can Borrow—Loans are made for the following purposes only: (a) To provide for the purchase of land for agricultural uses; to provide for the purchase of equipment, fertilizer and livestock necessary for the proper and reasonable operation of the mortgaged farm ("Equipment" has been defined by the Farm Loan Board as being implements needed in the conduct of a farm to facilitate its operation, such as machinery, tools and like articles);

(b) To provide buildings and for the improvements of farm lands: and the Farm Loan Board has defined "improvement" as being anything in the form of beneficial structure or any useful permanent physical change tending to increase productive value, such as clearing, tiling, drainage, fencing, etc.

(c) To liquidate indebtedness of the owner of the land mortgaged incurred for agricultural purposes, or incurred prior to January 1st, 1922.

9. It May Take Several Weeks to Complete a Loan—"The prospective purchaser of land who plans to buy with money, part of which he borrows from a Federal Land Bank, should give due consideration to the possibility of delay in the completion of negotiations for a loan. Cases have occurred in which prospective buyers have made deposits on land to secure a contract of sale, which contract they have forfeited because they were unable to complete the purchase, money which they depended upon Federal Land Banks to furnish being held up for one reason or another. Frequently, delay is due to failure to comply with the requirements of the Federal Land Bank or it may be due to the inability to send an appraiser quickly enough."

10. A Second Mortgage May Help Would-Be Land Owners—The Federal Land Banks can aid any worthy farmer in purchasing a farm to the extent of 50 per cent of the value of the land and 20 per cent of the value of the improvements. If the prospective purchaser is not able to pay the balance of the purchase price and can arrange with owner to carry the balance due him in the form of a second lien, the bank is ready to co-operate with him and the seller. For full information on how to do this send 5 cents for "Buying Farms with Land Bank Loans" to United States Department of Agriculture.

11. Borrower May Sell Farm Any Time—The fact that a farmer borrows from this bank does not prevent his selling the farm at any time he may wish to do so; on the contrary it aids the sale of it.

BORROWING FROM FEDERAL LAND BANKS; FREE CIRCULARS

Any of the following bulletins explaining the workings of the Federal Farm Loan Act and how farmers may borrow through it may be had free by addressing the Federal Farm Loan Board, Washington, D. C.

Circular No. 2, "How Farmers May Form a National Farm Loan Association."
Circular No. 5, "The Farm Loan Primer."
Circular No. 7, "Killing Off Mortgages."
Circular No. 18, "Rulings and Regulations of the Federal Farm Loan Board."

During What Month Do Farm Products Sell Best?

DR. G. W. Forster, of the Department of Agriculture and Economics, North Carolina State College of Agriculture & Engineering, has prepared an interesting table showing the month in which cotton, corn, peanuts, eggs, hogs, potatoes and milk *sell highest* and when they *sell lowest.*

The table is so constructed that the average yearly price is equal to 100. When a given crop is at 105, it means that the price is 5 per cent above the yearly average. In the case of peanuts, for example, the season's high price is reached in June, and is on the average 7 per cent above the average yearly price and from 8 per cent to 12 per cent above the low price at harvest time. The complete table is just above.

In discussing the holding of cotton and other crops for higher prices, Dr. Forster says:

"While it is not wise for the **average** farmer to hold his cotton for a high price, it is by no means true that an alert farmer, or a cotton association acting for the farmer, cannot profit by holding cotton. The alert farmer may study the market closely and be rewarded for his trouble. The association is in a position to study the market much better than the average farmer, and hence may profit by such a study. It is an argument, however, for an even month-to-month selling policy for both the farmer and the association, if they are uncertain regarding future price trends.

"It should also be pointed out that the selling at an advance in price is not the only source of profit by an association. They are in a better position to render other services than the average farmer, such as grading the product, etc. In case a cotton association can render such services better than the ordinary individual, it stands to gain, and such a gain will be added to the price received by the farmer."

Seasonal Movement of Farm Prices
Average of the Year, 100

Month	Cotton	Corn	Peanuts	Eggs	Hogs	Potatoes	Milk
January	98.6	95.5	95.4	126.7	96.3	99.5	123.0
February	98.6	94.5	99.3	118.1	100.3	100.5	117.0
March	98.4	95.2	99.3	81.7	105.4	101.0	106.7
April	98.6	98.9	102.0	75.4	106.5	108.7	96.3
May	100.0	101.6	103.0	76.3	102.3	107.2	78.5
June	101.5	102.5	107.0	74.1	100.3	104.1	64.4
July	103.0	104.4	105.0	78.8	101.3	106.2	76.3
August	102.5	105.3	100.3	86.1	100.5	102.1	88.1
September	102.0	104.1	99.5	100.0	103.6	91.3	99.3
October	100.0	100.9	97.4	108.2	99.4	89.2	110.4
November	97.5	100.8	96.5	133.5	92.6	94.4	119.3
December	98.0	96.6	96.5	140.4	91.7	97.4	122.2
Years	1908-1918	1897-1913	1910-1918	1897-1913	1897-1913	1897-1913	1897-1913

Whether to Sell Hogs on Foot or Dressed

COMPARISON of live-weight price with dressed-weight price necessary to net the same returns from hogs.

(Prices per hundredweight)

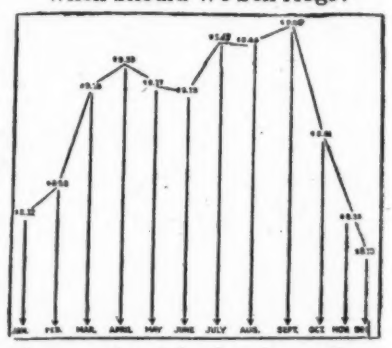
Live-weight price	Dressed-weight price necessary to net same return for carcasses dressing various percentages.				
	65%	70%	75%	80%	85%
$ 4.00	$ 6.15	$ 5.71	$ 5.33	$ 5.00	$ 4.70
4.50	6.92	6.43	6.00	5.63	5.29
5.00	7.69	7.14	6.67	6.25	5.88
5.50	8.46	7.86	7.33	6.88	6.47
6.00	9.23	8.57	8.00	7.50	7.06
6.50	10.00	9.29	8.67	8.13	7.65
7.00	10.77	10.00	9.33	8.75	8.23
7.50	11.54	10.71	10.00	9.38	8.82
8.00	12.31	11.43	10.67	10.00	9.41
9.00	13.08	12.14	11.33	10.63	10.00
9.50	13.85	12.86	12.00	11.25	10.59
8.50	14.62	13.57	12.67	11.88	11.18
10.00	15.38	14.29	13.33	12.50	11.76

What Size Basket, Crate or Hamper?

VERY often inexperienced fruit or vegetable growers are uncertain what size crate or basket they should use for a particular crop. Following is a list of standard containers as generally used and approved:

1. **Five peck crate**—For sweet potatoes.
2. **Bushel crate**—For Irish potatoes, sweet potatoes, cucumbers, onions, and other fruits and vegetables not otherwise provided for.
3. **Six basket crate**—For tomatoes, peaches, plums, peppers, okra, pears, and other fruits and vegetables not otherwise provided for.
4. **Four crate basket**—For tomatoes, Peaches, pears, and other fruits and vegetables not otherwise provided for.
5. **Bushel hamper**—For beans, beets with tops, onions with tops, cabbage, lettuce, kale, spinach, etc.
6. **Bushel basket**—For fresh fruits and vegetables.
7. **Barrels (Stave, open stave, and basket)**—11 pecks, 185 pounds—For potatoes, apples, cabbage, cucumbers.

When Should We Sell Hogs?



Average price of live hogs by months on the Chicago market over a period of twenty years, 1902-21, inclusive. When would you say market hogs? Southern farmers sell the bulk of their surplus hogs during November, December and January, when they are cheapest.—W. W. Shay.

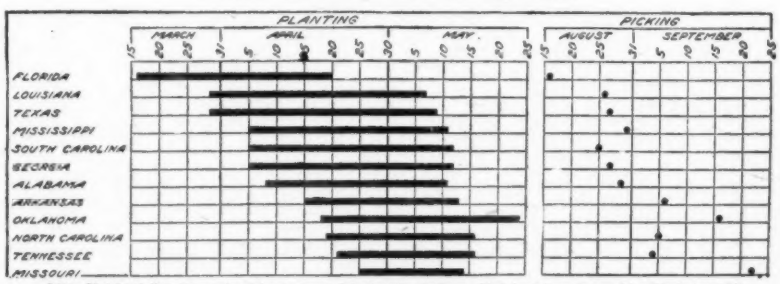
Producing Family and Farm Supplies

THE following acreages of food and feed crops will be required to feed properly a 2-mule family farm, averaging five adult persons or their equivalent:

	Acres
Garden—	
White potatoes	1-3
Sweet potatoes	½
Other vegetables	2-3
Fruit	½
	2
Corn with cowpeas or soybeans—	
Grain for family (meal)	1
For 2 cows	2
For 40 chickens	2
For 5 hogs	1½
For 2 head work stock	7
	13½
Roughage for cows and work stock	(13½)
Sugar cane, syrup and sugar for family	½
Oats and oat hay—	
For cows	1½
For chickens	2
For work stock	4
	7½
Cowpeas or other legume hay—	
For cows	(3)
For work stock	(4)
	(7)
Soiling crops, for cows	2
Cotton seed, for cows	(6¼)
Pasture—	
For cows and hogs	5
For work stock	2
	7

This totals practically 25½ acres of crop land and 7 acres of pasture, or 12¾ acres of crop land and 3½ acres of pasture per head of work stock. A second crop is taken from 7 of the 25½ acres and cowpeas or peanuts should be planted between the corn rows. This calculation aims to furnish the family liberally with food and to feed the farm livestock liberally. The vegetable and fruit gardens provided for are of sufficient size and variety of product to furnish an ample supply of fresh vegetables and fruits for the average cotton-belt family throughout the year.

Cotton Planting and Picking Dates



Cotton—Black bars indicate the normal period (not extreme) of planting cotton, by States. Black dots indicate the normal date of beginning to pick.

Mutual Fire Insurance for North Carolina Farmers

THE best thing North Carolina farmers wishing to organize local or county mutual fire insurance associations can do is to write to State Insurance Commissioner Stacy W. Wade, Raleigh, and the Farmers' Mutual Fire Insurance Association, T. B. Parker, president, Raleigh, and get their help. The following counties are already organized and farmers will do well to consult the secretary-treasurer named.

BRANCH	SECY.-TREAS	ADDRESS
Avery, Watauga, Caldwell	J. B. Horton	Vilas
Ashe & Allegheny	W. T. Hoyle	Newton
Catawba & Burke	W. R. Newton	Shelby
Cleveland	C. M. McKaughan	Winston-Salem
Forsythe & Stokes	S. A. Nowell	Louisburg
Franklin	J. S. Watkins	Virgilina, Va., Rt. 2
Granville	G. H. McKinney	Greensboro
Guilford	S. Deans	Snow Hill
Green	W. R. Sloan	Statesville
Iredell, Alexander & Davie	Oscar Hardy	Seven Springs
Lenoir	R. M. Roseman	Lincolnton
Lincoln	J. L. Coltrain	Jamesville
Martin	Jas. A. Worrell	Rich Square
Northampton, Hertford & Bertie	J. F. McAdams	Hillsboro
Orange	Jas. L. Little	Greenville
Pitt	M. L. John	Laurinburg
Richmond & Scotland	C. E. Allen	Asheboro
Randolph	H. G. Jones	Benaja
Rockingham	W. F. Peterson	Clinton
Sampson & Duplin	W. R. Norman (Pres.)	Rockford
Surry	A. A. Bunn	Henderson
Vance	W. H. Nichols	Neuse
Wake	G. R. Frazier	Warren Plains
Warren	G. H. Ferguson	Wilkesboro
Wilkes & Yadkin		

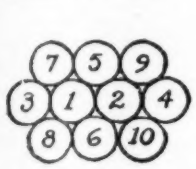
Security Required for Loans

FORM of security given for personal and collateral bank loans to farmers in ten leading cotton states; per cent of loans secured by various forms of security.

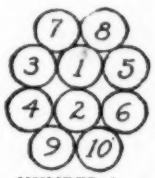
State	Note Without Indorsement	Note With One or More Indorsements	Mortgage on Livestock	Crop Lien	Warehouse Receipt	Stocks and Bonds	Other Ways
N. Carolina	10.5	68.6	1.7	5.2	2.1	7.5	4.4
S. Carolina	9.1	41.0	13.6	20.2	9.7	4.8	1.6
Georgia	12.5	50.1	14.5	4.9	10.0	3.5	4.5
Tennessee	18.1	67.2	5.0	1.5	.8	5.8	1.6
Alabama	10.4	20.1	31.5	24.1	7.5	2.4	2.0
Mississippi	12.7	27.0	30.2	15.1	8.0	9.1	7.9
Arkansas	12.1	37.9	22.7	10.9	3.0	2.2	2.3
Louisiana	15.5	52.7	12.4	5.2	2.7	9.0	2.5
Oklahoma	17.2	12.9	49.3	18.1	.7	1.2	.6
Texas	21.5	18.0	38.1	18.3	1.2	1.1	.9

Building Small Grain Shocks

THE kind of shock that is built depends to a considerable extent on the kind of bundle dropped by the binder. The tie should be slightly nearer the head than the butt of the bundle. In building the shock the inside or short side of the bundle should be placed towards inside of shock. With fairly dry grain, 12 to 14 bundles may be put in the shock, but 10 bundles, with one or two cap bundles is sufficient. The shock should be so built that it will shed rainwater rapidly, and with the bundles so compacted that a fairly slow curing process will result.



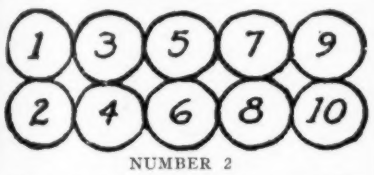
NUMBER 1



NUMBER 3

The setting of the first two bundles is very important. Pick up two bundles, taking hold of them just above the band, bring the heads together with the butts slightly apart and set firmly on the ground. The placing of the bundles from then on varies with the size of the shock and the different methods of building them. The cap bundle should be broken down so it will fit well and cover the top of the shock.

There are a number of different ways of building shocks, and the farmer should select the one which seems best under the particular conditions existing at the time. The accompanying diagrams show several that are very commonly used. The numbers indicate the sequence in which the bundles are set up in building the shock.



NUMBER 2

Number 1 is a 10-bundle shock, exclusive of the cap bundle, which will stand up against wind very satisfactorily when well built. The grain in this bundle is well protected against the weather and affords good curing facilities. It dries out reasonably quickly.

Number 2 is a very common but inferior way of shocking any but green or weedy grain. It will not stand against wind, and, furthermore, allows the shock to dry out too quickly.

Number 3 shock will permit the circulation of air freely throughout the shock, if an air space is left between the two halves of it, but it does not allow the slow curing of grain as in No. 1. It is well braced, and when properly capped will turn water well. This is a good shock for wet weather, but it is not so desirable for a long spell of dry weather.

Control Watermelon Anthracnose by Spraying

THE most practicable method of reducing the damage done by anthracnose to watermelons is to spray the vines with 4-4-50 Bordeaux mixture. If anthracnose spores are carried to healthy melon vines, they will become diseased unless protected by a coating of spray mixture, which prevents the germination of these spores and the development of the fungus. Thorough applications of 4-4-50 Bordeaux mixture will prevent the spread of anthracnose and will help to control other diseases of the crop.

One must remember that spraying is a preventive, not a cure, and that it is effective only to the extent that the entire surface of the healthy plant is kept covered with a thin coating of the spray solution. Knowing this and the fact that the disease spreads rapidly during and immediately after rainy weather, the farmer must choose the proper time for the application. The following schedule will serve as a guide for making this selection:—

Make the first application when the vines begin to run.

Spray the second time about one week after the first melons have "set" on the vines.

Make a third application about two weeks after the second.

If rains are frequent just preceding and during the loading season, it is sometimes profitable to continue spraying until the crop is harvested.

When anthacnose appears and the above schedule has not been used, try these emergency measures: Spray with Bordeaux mixture immediately and repeat the operation about 10 days later. —U. S. D. A.

Where the Farmer's Dollar Buys the Greatest Value

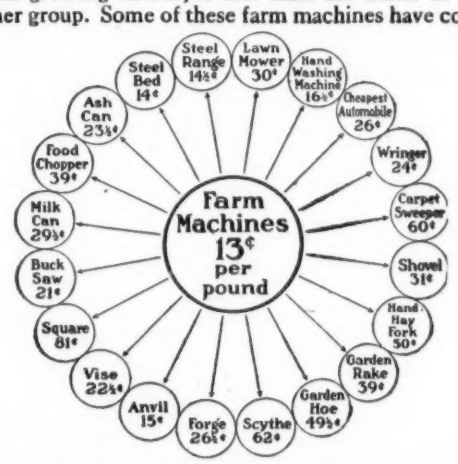
The chart below shows the prices per pound of the basic farm machines and other articles the farmer buys.

Ignore for a minute the *low figure* in the big circle and study the pound prices of the miscellaneous articles. You will see that they range *all the way from 14 cents up to 39,60 and even 81 cents per pound.* Yet these are not high-priced goods; they are ordinary, everyday articles made of the same materials that go into farm machines, and the prices are accepted as fair by all buyers. The articles are of a standard line sold practically everywhere.

IN some of the stores of any town the farmer's dollar buys the necessities of life; in others it buys physical comforts; in still others it buys pleasures. *In the farm equipment store the farmer's dollar buys the means to make many more dollars.* It buys the equipment which, like the land itself, is responsible for his progress and prosperity. When the farmer invests in modern farm machines, he is really buying clothing and education, electric lights, automobiles, radio outfits, etc., because these things are purchased with the money made by farm machines.

Of all the stores in town, *the farm equipment store is the one where the farmer gets the greatest return for his money.* This is true not only on the basis of the foregoing but it is found true also by comparing the prices paid by the farmer for different articles made of similar materials.

An interesting comparison has been made by the Research Department of the National Association of Farm Equipment Manufacturers. They took, First, a group of eleven basic farm machines: Sulky plow, peg tooth harrow, disk harrow, grain drill, corn cultivator, corn planter, corn sheller, grain binder, mower, hay rake, and farm wagon—and, Second, a list of common articles used on the farm but not classed as farm equipment. Then they obtained the pound prices of these articles by dividing the retail prices by the weights. The pound-price basis is the only practical way to compare these articles and it is entirely fair since the materials go through the same machine shop and factory processes and are handled by the same class of labor. Freight to the dealer's store was not included, since it applies to all articles the farmer buys and varies with the distance from point of manufacture.



Now note the low average retail price per pound of farm machines. The *average* pound price of these basic machines and implements, needed by every grain-growing farmer, is less than the *lowest* in the other group. Some of these farm machines have complicated parts in their makeup and all of them are built to stand years of hard use, yet *the average price the farmer pays for these necessary farm machines is only 13 cents per pound.*

The above comparisons, which can be duplicated in any community in this country, prove the statement that *the farmer pays less money, pound for pound, for the machines that do his work than he pays for any other similar manufactured article he buys.*

This shows what farm machines would cost if they were priced like other articles the farmer buys:

A sulky plow, priced like a wringer, would cost about **$45 MORE**
A peg-tooth harrow, priced like a forge, would cost about **$30 MORE**
A disk harrow, priced like a buck saw, would cost about **$50 MORE**
A grain drill, priced like a food chopper, would cost about **$390 MORE**
A corn planter, priced like a forge, would cost about **$60 MORE**
A corn cultivator, priced like a vise, would cost about **$40 MORE**
A corn sheller, priced like a milk can, would cost about **$20 MORE**
A 7-ft. grain binder, priced like the cheapest automobile, would cost about **$200 MORE**
A 7-ft. grain binder, priced like an ash can, would cost about **$150 MORE**
A 5-ft. mower, priced like a lawn mower, would cost about **$80 MORE**
A hay rake, priced like a garden rake, would cost about **$110 MORE**
A wagon, priced like a hand washing machine, would cost about **$50 MORE**

The National Association of Farm Equipment Manufacturers has issued several bulletins on subjects similar to the above. We will be glad to see that the full set is sent to those interested. Drop us a line.

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We will send a STERLING razor on 30 days trial. If satisfactory, costs $5.00, if not, costs nothing. Fine Horsehide Strop FREE. Write today. STERLING COMPANY, Suite 41 BALTIMORE, MD.

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Drop us a line today and we will send you absolutely free, our big assortment of woolen samples, style book and special wholesale prices, on our made-to-measure suits.

THE PROGRESS TAILORING CO., Dept. B-448 CHICAGO

Getting More Value From Fertilizers

Fertilizers Recommended for Virginia Soils

THE following fertilizer analyses, together with the quantities indicated, are recommended for leading Virginia crops and soil types:

ANALYSES FOR THE SANDY AND SANDY LOAM SOILS OF THE COASTAL PLAINS SECTION

Crops	Pounds Per Acre	Available Phos. Acid	Per Cent Nitrogen	Per Cent Potash
Cotton	600—1,000	8—12	3—5	3—5
Corn	300—600	8—12	2—6	2—6
Tobacco	800—1,200	8	3—4	3—4
Peanuts	400—600	8	2—3	3—4
Small grains	200—600	8—12	2—4	2—4

ANALYSES FOR PIEDMONT AND MOUNTAIN SOILS

Crops	Pounds Per Acre	Available Phos. Acid	Per Cent Nitrogen	Per Cent Potash
Cotton	600—900	8—12	3—4	2—4
Corn	300—600	10—16	0—4	0—2
Tobacco	800—1,000	8	3—4	3—4
Small grains	200—600	10—16	0—4	0—2

Fertilizers Recommended for South Carolina Soils

THE following fertilizer formulas, together with the quantities indicated, are recommended for leading South Carolina crops and soil types:

FORMULAS FOR SANDY AND SANDY LOAM SOILS OF THE COASTAL PLAIN SECTION

Crops	Pounds Per Acre	Available Phos. Acid	Per Cent Nitrogen	Per Cent Potash
Cotton	600—800	8—10	3—5	3
Corn	300—600	6—7	4—6	0
Tobacco	800—1,200	6—8	4—5	4
Peanuts	400—600	8	2—3	3—4

FORMULAS FOR PIEDMONT AND MOUNTAIN SOILS

Crops	Pounds Per Acre	Available Phos. Acid	Per Cent Nitrogen	Per Cent Potash
Cotton	600—800	10	3—5	2
Corn	300—600	8	4—6	0
Tobacco	800—1,000	8	3—4	3—4
Peanuts	300—600	8—10	2—3	2

In addition to the above, we recommend 100 lbs. soda as a side dressing on cotton, to be applied just after chopping.

Fertilizer Formulas for North Carolina Soils

THE following fertilizer formulas, together with the quantities indicated, are recommended for leading North Carolina crops and soil types:

FORMULAS FOR SANDY AND SANDY LOAM SOILS OF THE COASTAL PLAINS SECTION

Crops	Pounds Per Acre	Available Phos. Acid	Per Cent Nitrogen	Per Cent Potash
Cotton	600—1,000	8—10	3—5	3
Corn	300— 600	6— 7	4—6	2
Tobacco	800—1,200	6— 8	4—5	4
Peanuts	400— 600	8	2—3	3—4
Small grain	300— 400	6—7	4—6	2

FORMULAS FOR PIEDMONT AND MOUNTAIN SOILS

Crops	Pounds Per Acre	Available Phos. Acid	Per Cent Nitrogen	Per Cent Potash
Cotton	600—900	10—12	3—4	2
Corn	300—600	10	4—6	1—2
Tobacco	800—1,000	8	3—4	3—4
Peanuts	300—600	8—10	2—3	2
Small grains	300—400	10	4—6	1—2

Composition and Amount of Manure

Analysis (pounds per ton)

	Water	Nitrogen	Phosphoric acid	Potash	Amount per 1,000 lbs. live weight per day
Horse	913.9	9.8	5.2	9.6	48.8
Cow	1,505.0	8.6	5.8	8.8	74.1
Sheep	1,190.4	15.4	7.8	11.8	34.1
Pig	1,482.6	16.8	7.8	6.4	83.6

Equivalent Amounts of Plant Food Constituents in Different Forms

To Change—

1. Ammonia (NH 3) into an equivalent amount of nitrogen, multiply by 0.8235, or multiply by 14 and divide by 17.

2. Nitrogen (N) into an equivalent amount of ammouia, multiply by 1,214; or, multiply by 17 and divide by 14.

3. Phosphoric Acid (P2 O5) into an equivalent of phosphorus, multiply by 0.4366; or, multiply by 31, and divide by 71.

4. Phosphorus (P) into an equivalent amount of phosphoric acid, multiply by 2.29; or, multiply by 71 and divide by 31.

5. Phosphoric Acid into an equivalent amount of "bone phosphate of lime" (tricalcium phosphate), multiply by 2.183; or, multiply by 1.55 and divide by 71.

6. Tri-Calcium Phosphate into an equivalent amount of phosphoric acid, multiply by 0.458; or, multiply by 71 and divide by 155.

7. Phosphorus into an equivalent amount of "bone phosphate of lime" (tri-calcium phosphate), multiply by 5; or, multiply by 155 and divide by 31.

3. Tri-Calcium Phosphate (Ca3 (PO4) 2) into an equivalent amount of phosphorus, multiply by .2; or, multiply by 31 and divide by 155.

9. Potash (K2O) into an equivalent amount of potassium, multiply by 0.83; or, multiply by 39 and divide by 47.

10. Potassium (K) into an equivalent amount of potash, multiply by 1.2; or, multiply by 47 and divide by 39.

11. Calcium (Ca) into an equivalent amount of calcium oxide, multiply by 1.4; or, multiply by 7 and divide by 5.

12. Calcium Oxide (CaO) (quick lime) into an equivalent amount of calcium, multiply by .7143; or, multiply by 5 and divide by 7.

Conversion Factors

TO CONVERT nitrogen into ammonia multiply by 1.21.

To convert phosphoric acid into phosphate of lime or bone phosphate, multiply by 2.18.

To convert phosphoric acid in phosphorus, divide by 2.29.

To convert potash into potassium, divide by 1.20.

The Grain Drill Pays

A THREE year trial in drilling compared with broadcasting oats at the Illinois Experiment Station gave an increased yield of 5.3 bushels per acre each year and one bushel less seed was sowed in the drilled field. At the Iowa Station a four years' trial with winter wheat gave an average yield of 4.2 bushels more grain per acre from drilling.

What Farm Materials and Crops are Worth as Fertilizer

I.—SEED AND ROOT CROPS

Crop	Pounds per 100			Pounds per Bu.			Value per Bu.			
	Nitrogen	Phosphoric Acid	Potash	Nitrogen	Phosphoric Acid	Potash	Nitrogen	Phosphoric Acid	Potash	Total
Artichokes	.32	.14	.49	.18	.07	.27	.04	.00	.01	$0.05
Barley	1.51	.79	.48	.72	.38	.23	.16	.02	.01	.19
Buckwheat	1.81	.69	.30	.91	.35	.15	.20	.02	.01	.23
Corn	1.48	.61	.36	.83	.34	.20	.18	.02	.01	.21
Cotton Seed	3.00	1.40	1.20	.90	.42	.36	.20	.02	.02	.24
Cowpeas	3.12	1.01	1.20	1.87	.61	.72	.41	.03	.04	.48
Irish potatoes	.33	.16	.57	.20	.10	.34	.04	.01	.02	.07
Oats	1.81	.77	.57	.58	.25	.18	.12	.01	.01	.14
Peanuts	4.48	1.04	1.15	.99	.23	.25	.22	.01	.01	.24
Rice	1.04	.21	.04	.62	.13	.02	.14	.01	.00	.15
Rye	1.62	.81	.52	.91	.45	.29	.20	.02	.01	.23
Soy beans	5.30	1.87	1.99	3.18	1.12	1.19	.70	.06	.06	.82
Sweet potatoes	.24	.08	.37	.14	.05	.22	.03	.00	.01	.04
Wheat	1.73	.96	.35	1.04	.58	.21	.23	.03	.01	.27
Velvet beans	2.51	.53	3.84	1.51	.32	2.30	.33	.02	.12	.47

II.—HAYS, ROUGHAGES AND OTHER FORAGE CROPS

Crop	Pounds per 100			Pounds per Ton			Value per Ton			
	Nitrogen	Phosphoric Acid	Potash	Nitrogen	Phosphoric Acid	Potash	Nitrogen	Phosphoric Acid	Potash	Total
Alfalfa hay	2.29	.61	1.79	45.80	12.20	35.80	10.08	.61	1.79	$12.48
Alsike clover hay	2.05	.70	1.74	41.00	14.00	34.80	9.02	.70	1.74	11.46
Barley hay	.55	.20	1.06	11.00	4.00	21.00	2.42	.20	1.06	3.68
Beggar weed hay	2.46	.94	2.79	49.20	18.80	55.80	10.82	.94	2.79	14.55
Bur clover vines	2.34	.51	2.18	46.80	10.20	43.60	10.30	.51	2.18	12.99
Corn fodder (dry leaves)	1.55	.62	2.23	31.00	12.40	44.60	6.82	.62	2.23	9.67
Corn stover	.73	.23	.99	14.60	4.60	19.80	3.21	.23	.99	4.43
Cowpea vines	2.66	.66	2.36	53.20	13.20	47.20	11.70	.66	2.36	14.72
Crimson clover hay	2.05	.40	1.31	41.00	8.00	26.00	9.02	.40	1.31	10.73
Hairy vetch hay	2.78	.81	2.68	55.60	16.20	53.60	12.23	.81	2.68	15.72
Japan clover hay	2.29	.47	1.58	45.80	9.40	31.60	12.28	.47	1.58	14.33
Millet hay	.96	.38	1.53	19.20	7.60	30.60	4.22	.38	1.53	6.13
Oat hay	1.50	.65	2.20	30.00	12.00	44.00	6.60	.60	2.20	9.40
Oat straw	.65	.22	1.22	13.00	4.40	24.40	2.86	.22	1.22	4.32
Peanut vines	1.48	.38	.79	29.60	7.60	15.80	6.51	.38	.79	7.68
Rape (green)	.45	.15	.36	9.00	3.00	7.20	1.98	.15	.36	2.49
Red clover hay	2.09	.43	2.08	41.80	8.60	41.60	9.20	.43	2.08	11.71
Redtop hay	1.23	.36	1.02	24.60	7.20	20.40	5.41	.36	1.02	6.79
Rye straw	.49	.25	.86	9.80	5.00	17.20	2.16	.25	.86	3.26
Sorghum (green)	.33	.07	.34	6.60	1.40	6.80	1.45	.07	.34	1.86
Soy bean hay	2.73	.49	1.90	54.60	9.80	38.00	12.01	.49	1.90	14.40
Soy bean vines	2.48	.40	1.32	49.60	8.00	26.40	10.91	.40	1.32	12.63
Sweet corn fodder	1.47	.40	1.18	29.40	8.00	23.60	6.47	.40	1.18	8.05
Sweet clover hay	2.32	.66	1.26	46.40	13.20	25.20	10.21	.66	1.26	12.13
Timothy hay	1.08	.35	1.34	21.60	7.00	26.80	4.75	.35	1.34	6.44
Velvet bean hay	2.03	.56	1.18	40.60	11.20	23.60	8.93	.56	1.18	10.67
Velvet bean vines	2.51	.53	3.84	50.20	10.60	76.80	11.04	.53	3.84	15.41
Wheat hay	.74	.39	1.86	14.80	7.80	37.20	3.26	.39	1.86	5.51
Wheat straw	.43	.13	.74	8.60	2.60	14.80	1.89	.13	.74	2.76

III.—MISCELLANEOUS CROPS AND MATERIALS

Crop	Pounds per 100			Pounds per Ton			Value per Ton			
	Nitrogen	Phosphoric Acid	Potash	Nitrogen	Phosphoric Acid	Potash	Nitrogen	Phosphoric Acid	Potash	Total
Barley straw	.56	.18	1.20	11.20	3.60	24.00	2.46	.18	1.20	$3.84
Broom sedge	.78	.21	.68	15.60	4.20	13.60	3.43	.21	.68	4.32
Buckwheat straw	.83	.13	1.13	16.60	2.60	22.60	3.65	.13	1.13	4.91
Corn cobs	.32	.07	.66	6.40	1.40	13.20	1.41	.07	.66	2.14
Cotton lint	.28	.11	.62	5.60	2.20	12.40	1.23	.11	.62	1.96
Cotton stalks	.48	.25	1.66	9.60	5.00	33.20	2.11	.25	1.66	4.02
Leaves (forest)	.76	.26	.42	15.20	5.20	8.40	3.34	.26	.42	4.02
Manure, cow	.43	.29	.44	8.60	5.80	8.80	1.79	.29	.44	2.52
Manure, hen	2.13	2.04	.99	42.60	40.80	19.80	9.37	2.04	.99	12.40
Manure, horse	.49	.26	.48	9.80	5.20	9.60	2.16	.26	.48	2.90
Manure, pig	.84	.39	.32	16.80	7.80	6.40	3.70	.39	.32	4.41
Manure, sheep	.77	.39	.59	15.40	7.80	11.80	3.39	.39	.59	4.37
Millet straw	.70	.18	1.70	14.00	3.60	34.00	3.08	.18	1.70	4.96
Peanut hulls	1.14	.17	.95	22.80	3.40	19.00	5.02	.17	.95	6.14
Pine straw	.30	.04	.10	6.00	.80	2.00	1.32	.04	.10	1.48
Rice hulls	.53	.09	.22	10.60	1.80	4.40	2.33	.09	.22	2.64
Rice straw	.62	.14	1.54	12.40	2.80	30.80	2.73	.14	1.54	4.41
Sea weed (wild celery), air dry	1.24	.36	1.04	24.80	7.20	20.89	5.46	.36	1.04	6.86
Tobacco leaves	4.34	.50	5.74	86.80	10.00	114.80	19.10	.50	5.74	25.34
Tobacco stems	3.17	.65	5.02	63.40	13.00	100.40	13.95	.65	5.02	19.62
Velvet bean hulls	.77	.48	2.04	15.40	9.60	40.80	3.39	.48	2.04	5.91
Velvet beans and pods	2.78	.72	1.37	55.60	14.40	27.40	12.23	.72	1.37	14.32
10-4-2 Fertilizer mixture										$26.52

In calculating the values in the table above the following prices for the different plant food constituents were used:—

Nitrogen	22 cents per pound
Phosphoric acid	5 cents per pound
Potash	5 cents per pound

C. B. WILLIAMS, Chief, Division of Agronomy.

Composition of Fertilizer Materials

MATERIALS	Availability	PER CENT OR POUNDS IN 100				
		Nitrogen	Total Phosphoric Acid	Available Phosphoric Acid	Potash	Calcium
Nitrogenous Fertilizers						
Sodium nitrate	rs	15 to 16				
Ammonium sulphate	rs	20 to 21				
Potassium nitrate	rs	13			44	
Calcium cyanamid (lime nitrogen)	rs	10 to 16				28
Calcium nitrate	rs	12 to 14				22
Velvet bean meal (pod included)	ss	2.75	.75	0.75	1.8	
Cottonseed meal	ms	6 to 6.6	2.5 to 2.8	2.5 to 2.8	1.8	
Dried blood (red)	ms	12 to 14				
Dried blood (black)	ms	6 to 12				
Tankage (general range)	ms	4 to 10	2 to 18	2 to 18		7 to 10
Tankage (concentrated)	ms	10 to 12	2 to 4	2 to 4		5 to 8
Fish (dried) scrap	ms	8 to 10	5.5 to 7	5.5 to 7		5 to 6
Fish (acidulated)	ms	5	3	3		3 to 4
Meat (dried) scrap	ms	13 to 14				
Cotton seed	ss	3.12	1.5	1.5	1.5	
Castor bean pomace	ms	5 to 6	2 to 2.5	2 to 2.5	1 to 1.25	
Wool waste	vss	5 to 6	2 to 4	2 to 4	1 to 3	
Leather (ground)	vss	10 to 12				
Leather (acidulated)	vss	7 to 8				
Hoof meal	vss	10 to 15	1.5 to 2	1.5 to 2		
Phosphate Fertilizers						
Acid phosphate	rs		13 to 18	12 to 18		15 to 19
Basic slag phosphate	ms		16 to 20	12 to 15		29 to 32
Soft phosphate	ss		27 to 36			27 to 35
Rock phosphate	vss	3 to 4	21 to 25	21 to 25		23
Raw bone meal	ss	2 to 3	23 to 25			24
Steamed bone meal	ms		26 to 34	2.5 to 3.5		
Bone black (animal charcoal	ms		25 to 33	25 to 33		25 to 35
Dissolved bone black	ms		15 to 16	12 to 14		11 to 14
Potassium Fertilizers						
Potassium chloride (muriate)	rs				50 to 53	
Potassium sulphate	rs				48 to 51	
Kainit	rs				12 to 13	
Potassium nitrate	rs	13			44	
Potassium carbonate	rs				61 to 64.5	
Ashes—Bituminous coal	ms				.4 to .5	
Ashes—Wood (leached)	ms				1 to 3	14 to 21
Ashes—Wood (unleached)	ms				4 to 9	18 to 28
Manure salt	rs				11	

Key: rs—readily soluble; ms—moderately soluble; ss—slowly soluble; vss—very slowly soluble.

Senators and Representatives in Congress

IF you wish to write to your Senator or Representative in Congress, a letter addressed to him simply at Washington, D. C., will always reach him if you address your Senator as "Senator" or put "M. C." (Member of Congress) after the name of your Representative.

List of Senators by States

North Carolina—F. M. Simmons, Lee S. Overman.

South Carolina—Ellison D. Smith, Nathaniel B. Dial.

Virginia—Claude A. Swanson, Carter Glass.

List of Representatives by States

Virginia—S. O. Bland, Joseph T. Deal, Andrew J. Montague, P. H. Drewry, Clifton A. Woodrum, Thomas W. Harrison, R. Walton Moore, George C. Peery, Henry St. George Tucker.

North Carolina—Hallett S. Ward, John H. Kerr, Chas. L. Abernethy, Edward W. Pou, Charles M. Stedman, Homer L. Lyon, William C. Hammer, Robert L. Doughton, Alfred L. Bulwinkle, Zebulon Weaver.

South Carolina—W. Turner Logan, William F. Stevenson, James F. Byrnes, Fred H. Dominick, John J. McSwain, Allard H. Gasque, Hampton P. Fulmer.

Leaders of Boys' Club Work

WE should like to see 10 times as many boys enrolled in club work this year as ever before. If you wish any information on the subject that you cannot conveniently get in your locality, write directly to the boys' club leader of your state. Here is the list of state club leaders for this edition of The Progressive Farmer:

Virginia—Chas. G. Burr, Blacksburg, Va.

South Carolina—B. O. Williams, State Boys' Club Leader, Clemson College, S. C.

North Carolina—S. J. Kirby, Assistant State Agent, State College Station, N. C.

Livestock Sanitary Officials—Control of Animal Diseases, Etc.

North Carolina—Dr. Wm. Moore, State Veterinarian, Raleigh.

South Carolina—Dr. W. K. Lewis, State Veterinarian, Columbia.

Virginia—Dr. J. G. Ferneyhough, State Veterinarian, Richmond.

Kentucky—Dr. W. H. Simmons, State Veterinarian, Frankfort.

National Farmers' Organizations

American Farm Bureau Federation—President, O. E. Bradfute, and secretary-treasurer, J. W. Coverdale, both at 58 E. Washington St., Chicago, Ill.

National Grange—Master, S. J. Lowell, Fredonia, N. Y.; secretary, C. M. Freeman, Tippecanoe City, Ohio.

National Farmer's Union—Chas. S. Barrett, president, Union City, Ga.; A. C. Davis secretary-treasurer, Springfield, Mo.

Counties Having No Demonstration Agent

IT appears that 6 South Carolina counties, 29 Virginia counties, and 21 North Carolina counties have no county farm demonstration agent.

We earnestly hope that our Progressive Farmer readers in each of these counties will try to get this service as soon as the county authorities can be reached. Tax money spent for a county agent *is not an expenditure but an investment*—an investment that will repay itself each year in addition to the permanent good results it will furnish in all the years of the future. Following is the list of North Carolina, South Carolina and Virginia counties now without farm demonstration agents:

Virginia—Accomac, Alexandria, Alleghany, Buchanan, Cumberland, Dickenson, Fauquier, Floyd, Fluvanna, Franklin, Frederick, Goochland, Greene, Highland, Isle of Wight, Lancaster, Lee, Madison, Middlesex, Northampton, Page, Prince Edward, Richmond, Roanoke, Russell, Scott, Southampton, Tazewell, Wise.

North Carolina—Alleghany, Ashe, Bertie, Camden, Chatham, Dare, Franklin, Gates, Graham, Haywood, Hyde, Northampton, Onslow, Orange, Person, Sampson, Stokes, Surry, Tyrrell, Warren, Yancey.

South Carolina—Bamberg, Edgefield, Horry, Jasper, Orangeburg, Williamsburg.

IT took half the time of one hand to water the stock before we built our water supply plant. Now, the twist of a hand draws all water needed. Water goes into each room of our home and then carries itself away when we are through with it. No one who has not tried it knows the comfort and convenience of them. W. A. D.
North Carolina.

A $100,000 Poultry Farm That Is Run for You

Some Interesting Discoveries About Chickens — Methods That Make Poultry Raising Pay Better—Practical Suggestions on Care and Feeding

Did You Know—

THAT some widely used feeds lack as many as three of the five properties required for hens to lay well or even to attain normal size and strength?

That a slight change in housing birds and different proportions of the same foods can almost double the number of eggs?

That mechanically predigested food cuts down feeding loss of baby chicks to less than one in two hundred and fifty?

That extra eggs through scientific care of hens cost you less than a quarter of a cent?

AND the largest experiment poultry farm in the world broadcasts valuable information to poultry raisers all through the year—free?

[*By* WILLIAM R. DURGIN]

IMAGINE two hundred acres of fine, gently rolling land in eastern Pennsylvania dotted with splendid flocks of a variety of good breeds of poultry! My visit to the Pratt experimental poultry farm was something I shall never forget. Thousands of happy, healthy birds. A dozen well-equipped buildings. Veteran poultrymen making a scientific study of poultry raising—and making it pay.

I learned more practical things about poultry in my two days' visit to this model farm than all I ever gained through my own experience or in reading. One secret about pullets will be worth hundreds of dollars even to one who raises chickens on the small scale that I do. And you need not journey to Philadelphia to get this valuable information; the farm is conducted for the benefit of poultry raisers everywhere, and through its free bulletins (which you can start receiving now) it gives out a wealth of useful suggestions.

A Big Help

No one interested in chickens could see this vast poultry institution and not enter his name for the bulletin service that keeps poultrymen posted on new discoveries and developments in this field. Proof that their methods are practical is the tremendous commercial success this experimental farm has achieved. It markets enormous quantities of eggs. They have orders for birds of their raising from almost every state in the Union. I saw one order for 2500 to go to Colorado.

All over the property are special flocks of birds—'groups' they call them—and each group is under certain conditions of care, treatment, feeding, etc., of which daily record is kept. Fowls are measured and weighed; eggs are counted, analyzed, classified. Costs are kept to the penny.

And everything learned about the most successful, profitable way of raising poultry can be your knowledge for the asking.

I will try to give you an idea of the useful and practical things gained from the observations made on this model farm.

How They Learned to 'Regulate' Hens

In the old days a strain of heavy layers was largely luck. If now and then there were light layers there wasn't much to be done about it. But the Pratt organization determined by hundreds of tests just what vitamins and minerals were deficient in feeds but were necessary as egg-producing elements. Finally they were able to combine them all in a single preparation. Groups were brought up with these regulating elements put in with the usual feed, alongside of other groups without regulator. The least improvement of any regulated group showed one-third more eggs laid; in most cases there were half again as many eggs, and in some cases double the number!

Then, as to baby chicks. It is a pity more folks don't know the Pratt method of raising them! It's the feeding that brings them through; the superintendent showed me where the average loss in hatched chicks was only twenty in a thousand when all around that section there would be regular epidemics of the diseases and pests that mow down the young baby birds.

Regulating Did This

Above is a photograph of the head of a Barred Rock from a flock fed 15 weeks on a good, well-balanced farm feed. Below, head of same breed, fed the same kind and quality of food with which regulator was mixed daily. Was it worth the price of what you get for half an egg to get the result below?

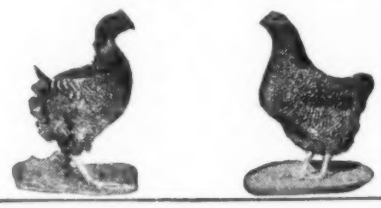
The Things All Baby Chicks Need

Here is what baby chicks get from their very first meal on the Pratt farm. It's a long list, and I wouldn't advise preparation of such a feed at home. Pratts gather and prepare these things on such vast scale that it is made up and distributed for less than any home-mixed feed would cost. The principal items these are:

Powdered buttermilk	wheat middlings
corn meal	ground rape
bone meal	oat meal
ground millet	cooked wheat

After twenty days the chicks are put on a special growing mash—and how they grow! The feathers and bodies of these young chicks prove the food values in this mash. I saw chicks less than two months old that weighed 22 ounces. This growing mash has fish meal, bone scrap, bone meal and dried buttermilk, all digestible, growth-giving animal proteins.

It is the older birds that offer best proof of how scientific care is rewarded. There were groups that had been fed differently to measure the value of balanced ration, and you could scarcely believe them the same breed and age. The same differences show in the hens that have been regulated and those that were not. It is apparent in their heads and eyes, and in their actions. You can tell at a glance which groups are doing the heavy laying. Over in one corner of this big farm are the various buildings. One is a laboratory. Another is where ailing birds are treated and remedies studied and tested. In another building they mail bulletins and answer questions which every mail brings from poultrymen who know that this practical advice is available.



The Difference Cost Exactly 9 Cents!

Two groups of Barred Rocks were fed the same amounts of mash for a period of three months. On the left is one of those receiving a generally accepted mash made of best grades of grains and scrap. On the right is one of the hens that were fed Pratts mash.

It is results like these that accounts for a line of feeds so good that sixty thousand dealers sell them on direct promise of satisfaction or money back.

What I saw at the Pratt experimental poultry farm cured me of 'going it blind.' I am through with home-made feeds and through trying anything except what this organization with fifty years' experience approves. They prepare every food needed for birds of any breed or age, and they draw on fifteen foreign lands for the right seeds, herbs, barks, and other things that beget healthy birds and plenty of eggs. They also make every remedy you want on hand, and their own flocks have shown them to be right. I am *through guessing.*

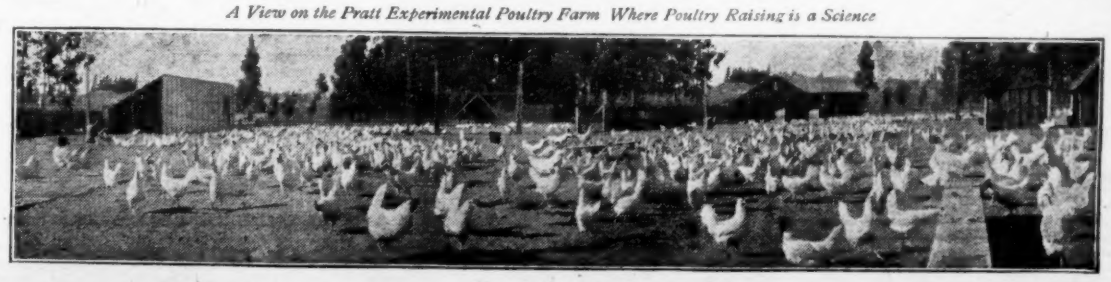
Special Notice

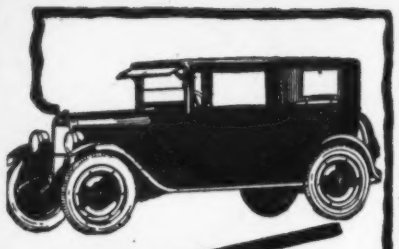
If you will drop a line now to the Pratt Food Company, 196 Walnut Street, Philadelphia, Pa., your name will be placed on the list to receive these interesting and highly informative bulletins.

There is also a very valuable book of practical pointers on the care of poultry and this, too, will be sent you without cost or obligation if you ask for it.

Cover design of a very useful illustrated book on poultry that readers may obtain without cost.

A View on the Pratt Experimental Poultry Farm Where Poultry Raising is a Science





Given Away!

$1045 MAXWELL Club Sedan

ON APRIL 30th, 1924, I am going to give to some prompt energetic person living in the country or a small town, a New $1045 Maxwell Club Sedan. This superb, roomy, 5 passenger car is completely equipped with Cowl ventilator, windshield visor and cleaner; rear vision mirror, heater, etc. I will also give as second prize a New Ford Sedan, equipped with electric lights and starter. War tax and freight paid on both cars. I have already given away 54 cars. Here are two more!

Thousands of Dollars

In Prizes and Cash Awards

I will also give away thousands of dollars in Cash Awards, Silverware, Bicycles, Gold Watches, Diamond Rings, Phonographs, etc. (Prizes will be duplicated in case of a tie.)

Everyone taking an active part in this contest will be well rewarded in cash, whether or not he wins an automobile or one of the other Grand Prizes. Just your name and address, with five or more faces correctly marked in the picture below, starts everything with 1000 votes to your credit. But every minute counts. So write at once!

Surprise Gift Package

Mail the coupon today, sure. I will send you a Surprise Gift Package, without cost, together with full instructions on how you can get the automobiles.

Cut Off and Mail

Find Five Faces

Mail This Coupon

Get 1000 votes and Surprise Gift Package

Find five faces in the picture—mark with pencil and mail today with your name and address. You will promptly receive our Surprise Gift Package and 1000 votes as a starter. The sooner you begin the easier it will be to win that car! SO WRITE NOW!

Ward Taylor, Mgr., Dept.29-51 Spencer, Ind.
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This notice is written to interest the man who wants to earn some money and in return for very liberal pay would be willing to introduce to friends and neighbors the finest C. T. A. clothes selling for $19.00, $24.00, $31.50, $33.50 per suit. We give one man in each community one of our best suits and in addition pay $3 to $12 for each order, besides extra cash bonuses, and many beautiful presents, including $1000 in cash, Ford Sedan, Elgin watch, Diamond Ring, etc. If you would like a fine suit and will be willing to show samples to at least a few men each week, send me your name and address and I will be glad to send you full details. C. A. Milligan, Mgr.
Chicago Tailors Association
Dept. 570, Ste. C, Chicago

PATENTS Write today for free instruction book and Record of Invention blank. Send sketch or model for personal opinion. CLARENCE A. O'BRIEN, Registered Patent Lawyer, 771 Security Savings & Com'l Bank Bldg., directly across street from Patent Office, Washington, D. C.

Miscellaneous Livestock Problems

Worms in Horses

HORSES are attacked by two kinds of worms, the pin worms which infest the large and small colon, and the large round worms which are found in the small intestines. The symptoms of these are, loss of flesh, hidebound staring coat of hair, large appetite, and in the case of the pin worm a white scum may form around the anus.

The best treatment is to withhold all feed for twenty-four hours, and give oil of chenopodium ½-ounce, and raw linseed oil 1 quart. Mix together and give as a drench. Withhold all feed until about three hours after giving medicine.

In some cases the first treatment does not remove all the worms, especially in the case of hogs, so it is usually best to give another treatment about thirty days after the first one.—Florida Extension Division.

Breeding Table

THESE dates are as accurate as possible. Some slight variation will probably be noticed. Mares usually require 340 to 345 days, jennets 365 days, cows 280 to 283 days, ewes and goats 146 to 150 days, sows 112 to 116 days, bitches 63 days.

If time of service is, say, 3, 7, 19 or 12 days, after any particular date, add the same number of days to expectation date.

Time of Service	Mares	Cows	Ewes	Sows
January 1	Dec. 6	Oct. 10	May 20	April 22
January 15	Dec. 20	Oct. 24	June 13	May 6
January 29	Jan. 3	Nov. 7	June 27	May 29
February 12	Jan. 17	Nov. 21	July 11	June 3
February 26	Jan. 31	Dec. 5	July 25	June 17
March 12	Feb. 7	Dec. 19	Aug. 8	July 1
March 26	Feb. 21	Jan. 2	Aug. 22	July 15
April 9	Mar. 7	Jan. 16	Sept. 5	July 29
April 23	Mar. 21	Jan. 30	Sept. 19	Aug. 12
May 7	April 4	Feb. 13	Oct. 3	Aug. 26
May 21	April 18	Feb. 27	Oct. 17	Sept. 9
June 4	May 2	Mar. 13	Oct. 31	Sept. 23
June 18	May 16	Mar. 27	Nov. 14	Oct. 7
July 2	June 6	April 10	Nov. 28	Oct. 21
July 16	June 20	April 24	Dec. 12	Nov. 4
July 30	July 4	May 8	Dec. 26	Nov. 18
August 13	July 18	May 22	Jan. 9	Dec. 2
August 27	Aug. 1	June 5	Jan. 23	Dec. 16
September 10	Aug. 15	June 19	Feb. 6	Dec. 30
September 24	Aug. 29	July 3	Feb. 20	Jan. 13
October 8	Sept. 12	July 17	Mar. 6	Jan. 27
October 22	Sept. 26	July 31	Mar. 20	Feb. 10
November 5	Oct. 10	Aug. 14	April 3	Feb. 24
November 19	Oct. 24	Aug. 28	April 17	Mar. 10
December 3	Nov. 7	Sept. 11	May 1	Mar. 24
December 17	Nov. 21	Sept. 25	May 15	April 7
December 31	Dec. 5	Oct. 9	May 29	April 21

How Many Hogs or Cattle Per Car?

TWENTY head of cattle weighing between 1,100 and 1,200 pounds will go into a 31-foot car, twenty-four in a 36-foot car and twenty-seven in a 40-foot car.

The minimum weight of a thirty-one foot car load of hogs loaded double deck is 19,000 pounds and 15,000 pounds loaded single deck. One hundred and fifteen 100-pound hogs or seventy-two 200-pounders or sixty-two 250-pound porkers will be accommodated in a 31 foot car. One hundred thirty-two 100-pounders or eighty-four 200-pound porkers or seventy-one 250-pound animals will go into a thirty-six foot car. One hundred forty-seven 100-pound porkers or ninety 200-pound animals or eighty 250-pound animals will go into a forty-foot car.

Methods of Preventing Contagious Abortion

IT HAS now been found that feed soiled with discharges and after-births from affected animals is generally responsible for the spread of contagious abortion.

Contagious abortion is controlled only by preventive measures and of these there are three of great importance:

1. Keep new animals out of the herd until they are known to be free of the disease.

2. Provide special stalls in which the cows may calve and see that these stalls are kept clean and are thoroughly disinfected.

3. Isolate the cows affected with abortion until there is no discharge.

The disease is not cured by any known medicinal remedies.

A Fly Repellant Formula

MANY of the Fly repellants on the market are effective for a few hours only, owing to their rapid evaporation. The use of a repellant in the form of a grease, which can be applied by a cloth or brush, has been of value in some instances, since evaporation is not so rapid. Such a repellant may be mixed by using the following formula:

Lard—1 gallon.
Sulphur—2 pounds.
Kerosene—1 pint.

Some aids in keeping the stable free from flies are cleanliness and darkness. Flies reproduce rapidly in manure and other decaying organic matter, so that the removal of manure to the fields or to a considerable distance from the stable is desirable. The windows may be darkened by nailing over them, on the inside, tar or building paper. Gunny-sacks may be hung in the doorway, or a few feet outside the doorway, in such a manner that some of the flies will be brushed from the cows' backs as they enter the stable.—Illinois Experiment Station.

Mineral Mixtures for Hogs

NO ONE should attempt to raise hogs unless he is willing to give them good feed, good care, and protect them in every way possible from disease. Worms, hog cholera, lice, and canker sore mouth kill large numbers of hogs throughout the South, especially little pigs.

To prevent worms, keep the following charcoal mixture before the pigs all the time:

Charcoal, 1 bushel.
Hardwood ashes, 1 bushel.
Salt, 2 pounds.
Air-slaked lime, 8 pounds.
Sulphur, 4 pounds.
Pulverized copperas, 2 pounds.

First mix the lime, salt, and sulphur thoroughly, and then mix in the charcoal and ashes. Dissolve the copperas in two quarts of hot water and sprinkle it over the whole mass, mixing thoroughly. Store this in a barrel under shelter, and keep some of it in an open shallow box where the hogs can get it as they wish.—United States Department of Agriculture.

Ridding Cattle of Horns

PREVENTING the growth of horns on cattle, says the United States Department of Agriculture, is much more satisfactory than cutting them off later, and is much less painful to the animal.

The method of prevention is simple. As soon as the budding horns of the calf can be felt as small "buttons" they may be stopped by clipping off the hair over them and rubbing the spot with a moistened stick of caustic potash which has been wrapped with paper to protect the hands from burning. The caustic must not be moistened enough so that it will run, for it will remove the hair and cause unnecessary irritation. A spot about the size of a dime directly over the "button" should be made raw by rubbing with the caustic stick. Calves must be protected from rain to keep the caustic from burning over the face.

Worms in Pigs

PROBABLY the best remedy for worms in pigs is to give one teaspoonful of turpentine to every 100 pounds of the pig's weight once a day for several days. It may be given in some milk or slop. It is a good plan to follow this with a mixture of one part of copperas to eight parts of charcoal and wood ashes. The pig may be allowed to eat as much of this as it desires. Hog lots should be changed at least every couple of years.

For Shippers of Cattle

AVERAGE shrinkage of cattle at several important markets as determined by the United States Department of Agriculture is as follows:—

Time in transit	Per cent shrinkage
Less than 24 hours	2.05 to 3.91
24 to 36 hours	3.45 to 6.37
36 to 72 hours	3.88 to 5.40
Over 72 hours	3.96 to 7.00

These figures are based on live weight at home and filled weight at market. Long hauls, rough handling, improper feeding and extreme weather are the principal facts that affect shrinkage. Anything the shipper can do to prevent scouring and induce the animals to take a normal fill when they get to the market is legitimate, but it is not advisable to do anything that will cause the animals to take an abnormal fill.

To prevent excessive shrinkage, the animals should be handled quietly. Feeds most likely to cause scours are silage, corn, clover, alfalfa and cowpea hays and grass. It is desirable to put the cattle on the cars full fed, but with as little moisture as possible.

Suggestions for Successful Sheep and Lamb Raising

Purchase Ewes That Are—

(a) Active, healthy, and well grown.
(b) Uniform in size and breeding.
(c) Straight in body lines and showing capacity for feed and reproduction.
(d) Covered with dense coats of marketable wool.
(e) Sound in mouth and milking organs.

Select a Ram That Is—

(a) Purebred.
(b) Active, vigorous, and from one to three years old.
(c) Symmetrical and evenly developed.
(d) Covered with firm flesh.
(e) Strong and straight in his legs.
(f) Evenly covered with a dense fleece.
(g) Do not use a ram lamb for breeding.

During the Mating Season—

(a) Have the ewes gaining in weight.
(b) Shear the ewes around the rear parts and see that dung does not collect.
(c) Dip the ewes and the ram if ticks, lice, or scab mites are present. Under any circumstances sheep should be dipped in the spring about ten days after being sheared, and just before they are placed in winter quarters.
(d) Feed the ram a pound of grain each day.
(e) Use one ram to every forty or fifty ewes.
(f) Keep a record of the time when the ram is turned with the ewes and when taken away. Turn the ram with the ewes only at night.
(g) Breed ewes so lambs will come from Dec. 15 to Feb. 15.

During the Period of Pregnancy, Which Is 146 to 150 Days—

(a) Have the ewes gain 15 to 25 pounds in weight.
(b) Feed grain and leguminous hay during the last month of pregnancy.
(c) Utilize cheap roughage.
(d) Shelter the ewes from cold rains and storms.
(e) If the flock is large, divide the ewes into groups relative to age, condition, and time of lambing.
(f) Do not allow pregnant ewes to crowd through small doors or into cramped, ill-ventilated quarters.

During the Lambing Period—

(a) Have warm quarters in cold weather.
(b) Give ewes plenty of room (12 to 16 square feet each).
(c) Have portable lambing pens 4 ft. by 4 ft. (Such a pen is the best place for a ewe and her lamb, until the lamb is one or two days old).
(d) Feed the ewe lightly on grain for three or four days after the lamb is born.
(e) Have shepherd stay at home day and night. The flock needs him.

During the Sucking Period—

(a) Do not make abrupt changes in the ration.
(b) Feed the ewe liberally until the pasture season arrives, green grazing when possible.
(c) If a ewe dies, give the lamb to another good-nursing ewe, or raise on a bottle, as they are well worth saving.

In Growing and Finishing the Lambs—

(a) Start them eating grain and hay early.
(b) Observe cleanliness in feeding.
(c) Be sure to provide a creep where they can eat separately from the ewes.
(d) Dock and castrate all market lambs when 2 to 3 weeks old.
(e) Forage crops, such as rye, oats, barley, rape, Canada field peas, crimson clover, should be provided both for the ewes and lambs. Green grazing is especially necessary for ewes in producing early lambs. Temporary pastures of this kind are the best for holding intestinal parasites in check. Turning the land and reseeding to other crops is very destructive to these parasites.

Market Lambs When Four to Five Months Old—

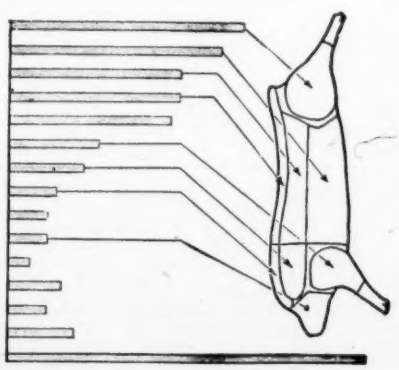
(a) They gain slowly during the hot summer months.
(b) The summer season is favorable for the infestation of the lambs with parasites.
(c) More feed is left on the farm for the breeding flock.
(d) Labor is saved, the risk is less, and the price is usually higher for lambs, at weaning time than later.
(e) Early weaning and early marketing makes early breeding possible, the first fundamental for successful lamb raising in the South.
(f) Market all lambs by June 15th, if possible.

Handling the Wool—

(a) Keep it free from burs, dung, and other foreign materials.
(b) Shear from the 15th of April to the 1st of May.
(c) Shear on a large, clean canvas placed over shavings or straw.
(d) Avoid cutting twice. Clip closely with a shearing machine if available.
(e) Keep wool clean. Remove all dung tags before packing, and then tie with paper or wool twine. Do not use sisal or jute twine.

Pork Products from a 250-Pound Hog—Finished Weights

	Per Cent	Pounds
Hams, Smoked	13.00	32.50
Bellies or Bacon	11.75	29.37
Loins, Fresh	9.50	23.75
Fat Backs, Salted	9.50	23.75
Lard, Rendered	9.00	22.50
Picnics, Smoked Shoulder	5.00	12.50
Boston Butts, Fresh	4.25	10.63
Clear Plates, Salted	2.75	6.87
Lean Trimmings, Sausage	2.25	5.63
Jowl Butts, Salted	2.25	5.62
Spare Ribs, Fresh	1.25	3.13
(1) Misc'l Edible Items	3.00	7.50
Total	71.50	181.75
(2) Edible By-Products	2.25	5.62
(3) Non-Edible By-Products	3.75	9.38
Shrinkage	20.50	51.25
Total Live Weight	100%	250 lbs.



(1) Including: feet, neck bones, tails, brains, cheek and head meat, ears, lips, and snouts.
(2) Including: plucks, gullet meat, weasand meat, giblet meat, tongues, kidneys, and stomach linings.
(3) Including: casings, blood, hair, grease, and tankage.
NOTE—Although this method of cutting is typical, proportions vary with trade requirements.

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No. 1	250 lbs.	$35.00	$5.00	$5.00 for 6 Months
No. 2	350 lbs.	$45.00	$5.00	$5.00 for 8 Months
No. 4	400 lbs.	$55.00	$5.00	$5.00 for 10 Months

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SILOS AND SILAGE

Feeding Silage to Livestock

THE following will serve as a guide relative to the amount of silage that may be fed daily to different classes of livestock:

Kind of stock	Approximate Daily Ration of Silage Pounds
DRAFT HORSES—	
Colts under one year	10
Wintering work horses or mules	20
CATTLE—	
Beef calves, first winter	15
Yearling stockers	22
Yearlings on full feed	12
1,000-lb. cattle on full feed	15 to 25
Dairy cows	35 to 40
Beef cows	30
SHEEP—	
Breeding ewes	2½
Fattening lambs	2½

Capacity of Silos

Inside Diameter	Height	Capacity Tons
12	30	60
12	32	65
12	34	70
12	36	75
14	30	80
14	32	90
14	34	100
14	36	110
16	30	110
16	32	120
16	34	130
16	36	140
16	38	150
16	40	165
18	36	180
18	42	215

The Size of Silo to Build

No. of Cows	Pounds Required Daily	Size of Silo Needed Diam. Feet	Height Feet	Cap. Tons
6	240	9	20	20
9	360	10	24	30
13	520	10	30	40
15	600	12	26	50
20	800	12	32	70
25	1000	12	38	90
30	1200	14	34	100
35	1400	14	38	120
40	1600	16	34	135
45	1800	16	38	150
50	2000	16	40	165

Based on 40 lbs. per cow a day.

One ton of hay requires 450 to 550 cubic feet of storage space, while one ton of silage requires only 50 to 60 cubic feet.

Estimated Weight of Settled Corn Silage, in Tons

Depths of Silage, Ft.	10 ft. diameter	14 ft. diameter	18 ft. diameter	20 ft. diameter
1	1.26	2.46	4.07	5.03
2	2.54	4.98	8.23	10.17
3	3.85	7.55	12.46	15.40
4	5.19	10.19	16.81	20.79
5	6.55	12.85	21.21	26.22
6	7.94	15.56	25.68	31.75
7	9.37	18.37	30.31	37.48
8	10.80	21.19	34.95	43.21
9	12.26	24.04	39.66	49.03
10	13.74	26.95	44.45	54.95
11	15.25	29.89	49.31	60.96
12	16.77	32.89	54.25	67.07
13	18.32	35.93	59.27	73.27
14	19.90	39.02	64.36	79.57
15	21.44	42.04	69.34	85.72
16	23.05	45.21	74.57	92.19
17	24.63	48.30	79.67	89.49
18	26.22	51.42	84.81	104.84
19	27.83	54.56	90.00	111.27
20	29.45	57.75	95.25	117.75
21	31.00	60.79	100.28	123.97
22	32.65	64.03	105.61	130.56
23	34.32	67.29	110.50	137.22
24	35.90	70.40	116.13	143.56
25	37.60	73.72	121.60	150.33
26	39.20	76.87	126.80	156.75
27	40.92	80.24	132.36	163.63
28	42.55	83.43	137.62	170.13
29	44.30	86.86	143.27	177.11
30	45.94	90.09	148.59	183.69

This table should be used only for silage that has settled at least one month and may be used to estimate the amount of silage remaining when a portion has been removed from the silo. When no silage has been removed the depth of the silage is found and the estimated weight of silage readily determined from the table. For example, twenty-five feet of silage in a silo fourteen feet in diameter is estimated by the table to weigh 73.7 tons.

If a portion of the silage has been removed the best plan is to estimate by use of the table the tonnage before any was removed, and the amount removed. The difference will be the amount on hand. In case the original depth of the settled silage is uncertain, the best plan will be to make the closest estimate possible as to the original depth.—Texas Experiment Station.

When Will Silos and Cream Separators Pay?

LIVESTOCK authorities agree, we believe, that where ten to fifteen or more mature cattle are to be carried through the winter, the silo will return a good profit on the money invested; and dairy experts reckon where five or more milk cows are kept, the cream separator will soon pay for itself in the amount of extra butterfat saved

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All horses have four legs. All tires are made up of rubber and layers of cotton cord or fabric.

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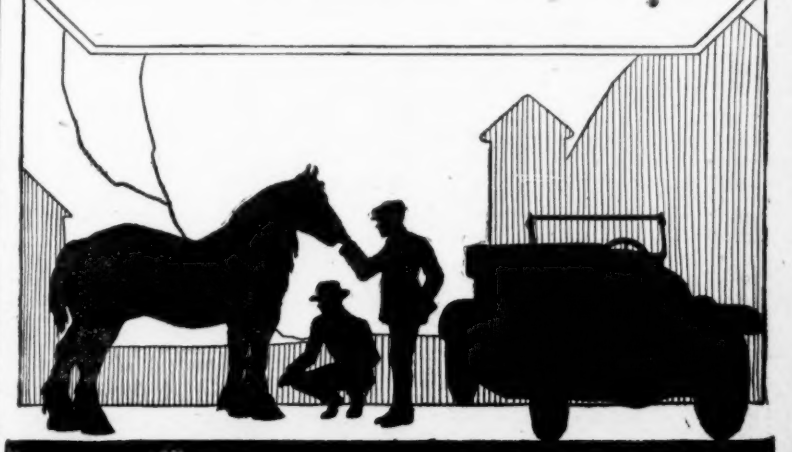

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What to Do About Trees

How to Plant a Forest

FOREST plantings of our more valuable native trees can oftentimes be made by seeding directly with nuts or acorns, where the trees are to stand, and thus reducing the cost by about half what it would be were seedlings used.

Black walnut, hickory, and oak plantations may be started by direct seeding. Nuts and acorns collected in the fall after frosts have cut them from the trees can be planted soon after. A good rule to follow is to plant two or three times as many nuts as seedling trees, in order to insure a stand.

Plowing and preparing the ground is best, but it is not necessary. If seeding is done in grassland, skim the sod off a space a foot or so in diameter and dig a hole in the center for the nut. Plant nuts and acorns to the depth of 3 or 4 times the diameter of the seed. In sod land it means less work to space the planting 6x6 feet and put two or three nuts in a spot.

If the seed is scattered broadcast on soil prepared by plowing and harrowing like grain, some such amounts as follow will be required per acre:

White and chestnut oaks	bushels	12
Red and black oaks	"	8
Ash	pounds	40
Beech	"	130
Maple	"	40
Elm	"	24
Birch	"	32
Slash pine	"	3
Chestnut	bushels	8
Hickory	"	8

To Deaden Trees

THE following prescription is a deadly poison to all kinds of trees and other plants:

One pound powdered arsenic.
Two pounds sal soda.
Two gallons of water.

Mix well together by heating water to the boiling point and add the sal soda which will dissolve within two or three minutes in boiling water, after which add arsenic and stir, while solution continues to boil, for ten minutes, or until arsenic is thoroughly dissolved, which completes the mixture, ready for use. Do not inhale the steam vapor from the boiling solution, as it is poison.

When this preparation is cool it may be kept in jugs or tight lidded buckets indefinitely for future use.

Application—Girdle trees, using an axe to chop it once around body of tree and immediately apply the poison solution in the axe gash opening, using an oil can or some other spouted vessel for convenience to avoid unnecessary waste of solution.

Enough solution to fill the axe gash or saturate the girdle is sufficient to kill the tree within a few days.

This method of deadening timber may be used to kill trees on new grounds, creek banks or other useless timber growth on the farm that shade and damage field crops, in the spring or summer months while the sap is flowing freely, at a small cost to the farmer, with satisfactory and desired results.

Arsenic is deadly poison to man or beast, as well as to plants, and must be handled with the greatest of care. Do not use the arsenic solution on trees or other plants in pastures.

Lumber and Timber Measurements

NUMBER of Cubic Feet in the Trunk of a Standing Tree—Find the circumference in inches, divide by 3.1416, square the quotient, multiply by length in feet, divide by 144, deduct about one-tenth for thickness of bark, and the result will be, approximately, the number of cubic feet.

To Find the Quantity of Lumber in a Log—Multiply the diameter in inches at the small end by one-half the number of inches, and this product by the length of the log in feet, which last product divide by 12. Example: How many feet of lumber can be made from a log, 30 inches in diamter and 14 feet long? Solution: Thirty times 15 equals 450; 450 times 14 equals 6,300; 6,300 divided by 12 equals 525 feet.

Lumber is measured by the so-called board foot, which is one foot square and one inch thick. The following is generally considered the most satisfactory method of calculating the number of board feet in a piece or a number of pieces of lumber.

Multiply the thickness in inches by width in feet by length in feet.

Example

$$\frac{2x7x14}{1x12x1} = 16\ 1\text{-}3 \text{ board feet.}$$

When purchasing lumber, give the dimensions in the order of thickness, width and length, as: 8 pieces 5 inches by 9 inches by 12 feet.

In quantities, lumber should be ordered as follows: 1000 feet long leaf pine dressed 2 sides to 7-8-inch, 9 inches and up. This makes the minimum width 9 inches.

Comparative Rates of Diameter Growth of Trees

Average No. years to grow 1 inch in diameter	Species
2 to 4 years	*Cottonwood, black willow, *white willow, *honey locust, *black locust.
3 to 5 years	Shortleaf pine, bald cypress, slash pine.
3 to 6 years	Red gum, *silver maple, *white elm, yellow poplar, chestnut, *hardy catalpa.
4 to 7 years	*White ash, *green ash, *box elder, *black walnut, white pine, red pine, *butternut, red oak, southern red oak, black oak, *bur oak, aspen, *osage orange, basswood.
5 to 10 yrs.	Hickory, white oak, chestnut oak, paper birch, yellow birch, *hard maple, beech.

Table is based on growth of trees in plantations (marked with an asterisk) and in natural forest stand, (those not so marked).

Planting and Setting Forest Trees

The following table gives information regarding the storage, planting, etc., of forest tree seeds.

Common Name	When to Gather	When to Plant	How Stored	Germination	Length of drill sown one pound of seed.
Silver maple	May	At once	Cannot be stored.		
Box elder	October	Spring or Fall	Stratified in sand.	Good	
Hardy catalpa	October	Spring or Fall	Dry and cold	Good	
Hackberry	October	Spring or Fall	Stratified in sand.	Good	960
White ash	October	Spring or Fall	Stratified in sand.	Poor	200
Green ash	October	Spring or Fall	Stratified in sand.	Fair	400
Honey locust	October	Spring or Fall	Stratified in sand.	Good	256
Hickory	September	Spring or Fall	Stratified in sand.	Good	15
Black walnut	September	Spring or Fall	Stratified in sand.	Good	4
Red cedar	October	Spring or Fall	Stratified in sand.	Very good	640
Russian mulberry	July and Aug.	Spring	Dry and cold		
Red mulberry	July and Aug.	Spring	Dry and cold		
Sycamore	October	Spring or Fall	Stratified in sand.	Good	4000
Cottonwood	July	At once	Cannot be stored.		
Carolina poplar	July	At once	Cannot be stored.		
White oak	October	Spring or Fall	Stratified in sand.	Very good	50
Red oak	October	Spring or Fall	Stratified in sand.	Very good	30
Black locust	October	Spring or Fall	Stratified in sand.	Good	960
Chinese arborvitae	September	Spring	Dry and cold	Good	6000
Bois d'arc	Sept. and Oct.	Spring	Dry and cold	Very good	480
White elm	May	At once	Cannot be stored.	Good	2000
Winged elm	May	At once	Cannot be stored.		
Cedar elm	September	Fall	Cannot be stored.		

If trees are to be set out the rate of spacing to be followed is as follows:

Spacing in feet.					
12 by 12	8 by 8	7 by 7	6 by 6	5 by 5	4 by 5
Number of trees required per acre					
303	680	889	1,210	1,743	2,178
Cottonwood	Yellow poplar Red gum Loblolly pine Slash pine	Shortleaf pine Chestnut Black locust Bald cypress	White pine Red pine Red oak Black oak Black walnut White ash	Hickory White oak Chestnut oak Bur oak Post oak Red elm Basswood	Hard maple Yellow birch Beech

—Texas Forestry Association.

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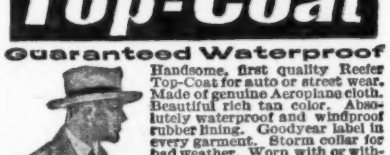

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Just send size and color and I will ship this stylish two-piece knitted suit to you. You don't pay one penny until it is delivered at your door by postman. The material is a knitted cloth of excellent weight with angora brushed finish. Will give unlimited satisfactory wear. The most stylish material ever designed for sport or everyday wear.

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Sizes 32 to 46 in. bust for women; 14, 16 & 18 for misses.

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But rush your order now! Give us Name, Address and Size. We will ship the dress by parcel post. Pay the mailman $3.98 and postage when the package arrives. Then examine the dress in your own home. If not satisfied in every way return the dress to us, and we will refund every cent of your money.

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Treating Posts With Creosote

ROUND pine and oak posts made from young trees six or eight inches in diameter, when well seasoned and thoroughly impregnated with creosote, will last for longer than 10 years. Black gum, sweet gum, hickory, and poplar posts are not as durable when treated with creosote as are pine and oak posts.

Untreated pine posts last from one to four years.

Round posts when properly seasoned are more durable than split or sawed posts of the same species. This is due to the fact that the creosote penetrates the round posts better and more evenly than it does the split or sawed posts.

Small posts when treated with creosote are better than large posts. They absorb the creosote better and last longer.

As a preparation for treatment, all posts must be peeled, having the inner white bark as well as the outer rough bark all removed, and must be well seasoned.

To season posts it takes about eight weeks for pine and about six weeks, depending on the season, for other species.

In creosoting, it is best to use two tanks, one for hot creosote and one for cold. The posts should be placed in the tank containing creosote heated to 220 degrees F., standing the butts of the posts in the hot oil to the depth they are to go into the ground, allowing them to remain two or three hours. The entire post is then immersed for about two hours in cold oil having a temperature 120 degrees F. If only one tank is available the creosote is kept at a temperature of 220 degrees F., for three hours after the posts are put in the tank. Then the tank should remain unheated for three hours while the creosote cools. The posts are allowed to stand butts down in the tank about an hour after the oil has started to cool, then turning them down for the balance of the cooling.

The brush treatment with creosote, while not as good as the tank treatment, more than doubles the life of pine posts.

The more durable kinds of wood are now very scarce, and it is cheaper to get out and treat sap pine or oak posts than it is to purchase good heart cedar, or chestnut posts.

Ten Helps in Marketing Woodland Products

1. Get prices for various wood products from as many sawmills and other wood-using plants as possible.

2. Before selling, consult neighbors who have sold timber, and benefit from their experience.

3. Investigate local timber requirements and prices. Your products may be worth more locally because transportation is saved.

4. Advertise in papers and otherwise secure outside competition.

5. Secure bids, if practicable, both by the lump and by log-scale measure.

6. Be sure that you are selling to responsible purchasers.

7. Get a reliable estimate of the amount and value of the material before selling.

8. Market the higher grades of timber and use the cheaper for farm purposes.

9. Remember that standing timber can wait over a period of low prices without rapid deterioration.

10. Use a written agreement in selling timber, especially if the cutting is to be done by the purchaser.—U. S. D. A.

Government Whitewash Formula

A WHITEWASH that has been thoroughly tested by the U. S. Government and many individuals is made as follows:

"Slake in boiling water one-half bushel of quicklime, keeping it just fairly covered with water during the process. Strain to remove the sediment, which will fall to the bottom, and add to it one peck of salt dissolved in warm water, 3 pounds of ground rice boiled in water to a thin paste, ½ pound of powdered Spanish whiting, and a pound of glue dissolved in warm water. Mix the different ingredients thoroughly and let the mixture stand for several days. When ready to use, apply it hot. If a less quantity is desired, use the same proportions."

For buildings on the farm, fences, etc., this will to a great extent answer the purpose of paint and at a much reduced cost. The rice flour and glue make the whitewash stick. Rain and freezing have slight effect on this whitewash and it may be put on with a sprayer. When sprayed, hold the nozzle 15 or 20 inches from the sprayed surface.

Number of Shrubs or Plants for an Acre

Distance Apart	No. of Plants	Distance Apart	No. of Plants
3 in. by 3 in.	696,960	8 ft. by 8 ft.	680
4 in. by 4 in.	392,040	9 ft. by 9 ft.	537
6 in. by 6 in.	174,240	10 ft. by 10 ft.	435
9 in. by 9 in.	77,440	11 ft. by 11 ft.	360
1 ft. by 1 ft.	43,560	12 ft. by 12 ft.	302
2 ft. by 1 ft.	21,780	13 ft. by 13 ft.	257
2 ft. by 2 ft.	10,890	14 ft. by 14 ft.	222
3 ft. by 1 ft.	14,520	15 ft. by 15 ft.	193
3 ft. by 2 ft.	7,260	16 ft. by 16 ft.	170
3 ft. by 3 ft.	4,840	17 ft. by 17 ft.	150
4 ft. by 1 ft.	10,890	18 ft. by 18 ft.	134
4 ft. by 2 ft.	5,445	19 ft. by 19 ft.	120
4 ft. by 3 ft.	3,630	20 ft. by 20 ft.	108
4 ft. by 4 ft.	2,722	25 ft. by 25 ft.	69
5 ft. by 1 ft.	8,712	30 ft. by 30 ft.	48
5 ft. by 2 ft.	4,356	33 ft. by 33 ft.	40
5 ft. by 3 ft.	2,904	40 ft. by 40 ft.	27
5 ft. by 4 ft.	2,178	50 ft. by 50 ft.	17
5 ft. by 5 ft.	1,742	60 ft. by 60 ft.	12
6 ft. by 6 ft.	1,210	66 ft. by 66 ft.	10
7 ft. by 7 ft.	881		

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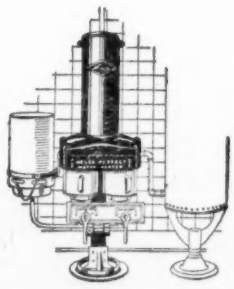

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THROUGH the twelve Federal Land Banks, farmers own and operate a huge national co-operative borrowing and investing business. Already, these Banks have resources of over $880,000,000! They are supported by more than 4,500 local National Farm Loan Associations with a membership of nearly 300,000 farmers.

After paying the costs of operation and setting aside necessary reserves, all profits are returned to the borrowing farmers through their local associations. To date, over $7,000,000 has been paid as dividends.

A Federal Land Bank mortgage need never fall due. It is gradually retired by the semi-annual payment of a uniform sum, equal to the interest on the amount borrowed plus ½ of 1% of the loan. For example, the farmer with a mortgage of $1,000 at 6% pays $35 every six months. This includes the interest and a payment on the principal sufficient to cancel the loan in about 33 years.

When You Have Money To Invest

Every farm family should support their co-operative Farm Loan System by investing in Federal Land Bank Bonds. This can be started with a single Bond—$40, $100, $500, $1,000, $5,000 or $10,000—and increased as the money can be spared. These bonds are safe. No investor in them has ever lost a dollar. They are free from all taxes, except inheritance taxes. This applies to both principal and interest.

Should you need money quickly, these Bonds command a ready market, or your banker will accept them as security for a loan.

You can buy these Bonds from any Federal Land Bank or from the Fiscal Agent at Washington, D. C. The Bonds will be sent by registered mail. All correspondence confidential. Remember that the words "The Federal Land Bank" appear at the top of every Bond issued by a Federal Land Bank.

Write today for "Federal Farm Loan Board Circular No. 16." It's free.

If you desire a Federal Farm Loan, apply to the Secretary-Treasurer of the nearest National Farm Loan Association. Ask your County Agent for his address.

The Federal Land Banks are located at

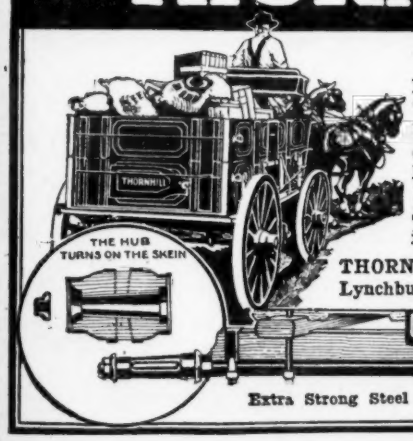
Springfield, Mass.	St. Louis, Mo.	Louisville, Ky.	Columbia, S. C.
New Orleans, La.	Berkeley, Cal.	St. Paul, Minn.	Houston, Texas
Wichita, Kansas	Omaha, Nebr.	Baltimore, Md.	Spokane, Wash.

Fiscal Agent

FEDERAL LAND BANKS

Washington, D. C.

THORNHILL



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Spraying the Home Orchard

Spraying Pointers to Remember

SPRAY thoroughly—Every leaf and fruit must be coated with a thin film of spray to be protected. Timeliness and thoroughness are more important factors in the control of diseases and insect pests than are the particular mixtures of poisons used.

2. For nearly all fungous diseases spray **before** rains, not after. Fungus spores are scattered and germinate during rains, seldom after. Protect the plants by having the mixture on when the rain comes. Bordeaux or Lime sulphur do not wash off easily. When spraying for insect pests **alone**, apply the mixture **after** rains.

3. **Use a nozzle that gives a fine misty spray**—The finer the spray and the greater the pressure with which it is thrown the more effective the work will be. A very fine mist forcibly applied covers the leaf with a thin film which adheres, while even greater applications of spray applied in coarse drops may be less effective—First, because it is not so evenly distributed, and second, because there is much more danger of the larger drops running together and dripping off the leaves.

High pressure also tends to drive the mixture in among the leaves thus touching the lower leaves, and more effectually coating both sides of the leaves, which is very important.

Two things are therefore necessary:
First—**A pump which will give** a working pressure of not less than 100 pounds.
Second—**A fine spray nozzle which will produce** the misty spray.

It frequently becomes necessary, in order to reach the highest foliage on tall trees, to use long lengths of hose or extension pipes. Extension pipes are preferable.

Pumps must be **scientifically designed** in order to be capable of producing and sustaining the necessary **pressure.**

4. All chemicals used in spraying should be kept **correctly labeled** and out of the reach of children.

5. **Never spray when trees are in bloom.** This will kill the bees which are necessary for fertilizing the flowers. Spray just before the buds open or just after the bloom has fallen.

6. **Never put the lime-sulphur wash in a copper sprayer.** The action of the chemical is very rapid upon the copper and will shortly destroy a copper sprayer. For spraying this wash use galvanized iron or a brass receptacle.

7. In spraying, great pains should be taken to **cover all parts of the tree, shrub or plant.** If a heavy rain immediately follows the application of the spray the process should be repeated. Do not spray when the foliage is wet.

8. In all the formulas which require quicklime, the best stone lime freshly burned or the New Process white lime should be used. **Air-slaked lime will not answer.**

9. It is difficult to keep quicklime if the atmosphere is at all moist. Under these conditions the lime should be **slaked with water while it is yet fresh.** When slaked it may be kept for months if a little water is kept over it. In this form use 2½ to 3 pounds to each pound called for in the formulas.

10. **Bordeaux mixture should be applied several times to apples,** once before the buds break, once after the bloom falls, then after a lapse of ten days or two weeks. A fourth application can be made a week or two later. With some fungous diseases the Bordeaux can be profitably used every ten days to two weeks. If the lime-sulphur wash has been used the first application of the Bordeaux may be omitted.

11. **Spray every season.**—It is impossible to determine in advance whether or not the plant or tree will be attacked. **Proper spraying is never injurious.**

12. Don't spray only the trees from which you expect to get marketable fruit. **Spray all the trees,** otherwise the trees you spray early in the season may become infected later by the unsprayed trees. "An ounce of prevention is worth a pound of cure."

13. Don't put your sprayer away after using it until you have thoroughly cleaned out all the spraying mixture. If this is left in, the pump will be injured and the glands and valves clogged.

14. Don't leave the sprayer where it will freeze, unless all the liquid has been drained from it. If liquid is frozen in the pump, it is liable to break or expand the cylinders so the pump will not work.

How to Make Self-Boiled Lime-Sulphur

SULPHUR 8 pounds, lime 8 pounds, water 50 gallons. Add enough water to this lime to start slaking; next add the sulphur, having no lumps, and add enough water to continue slaking. Stir constantly and as soon as the vigorous boiling is over (2 to 15 minutes) add cold water and stop the process. Dilute with water, strain and add up to 50 gallons of water. It is then ready to apply.

Plant Lice

TO kill plant lice and other soft bodied sucking insects, spray them with a tobacco decoction which can be made as follows:

Put a pound of tobacco stems or a poor grade of tobacco in a gallon of water and boil for one hour. Then strain through a cheesecloth into another vessel and add more water until the material takes on the color of weak tea. When this material is sprayed on soft bodied sucking insects, it kills them.

Quantity of Spray Material for One Tree

	Peach Trees	Plum Trees	Apple Trees	Pear Trees
Under 3 years	¼ to 1 gal.	.....	.....	.....
3 to 4 years	1 to 1½ gal.	.....	¼ to 1 gal.	¼ to ½ gal.
4 to 5 years	1½ to 2 gal.	¼ to 1 gal.	1 to 2 gal.	½ to 1 gal.
5 to 6 years	2 to 2½ gal.	1 to 1½ gal.	2 to 3 gal.	1 to 1½ gal.
6 to 8 years	2½ to 3½ gal.	.....	2½ to 3½ gal.	1½ to 2 gal.
8 to 10 years	3½ to 5 gal.	2 to 4 gal.	3 to 4 gal.	2 to 2½ gal.
10 to 12 years	.....	.....	3½ to 4 gal.	2½ to 3 gal.
12 to 15 years	.....	4 to 5 gal.	4 to 5 gal.	3 to 3½ gal.
15 to 18 years	.....	.....	4½ to 5½ gal.	3½ gal.
18 to 20 years	.....	.....	5 to 6 gal.	3½ to 5 gal.
20 to 25 years	.....	.....	6 to 8 gal.	5 to 8 gal.
Over 25 years	.....	.....	8 to 10 gal.	.....

A Spray Calendar for Orchard Fruits

APPLES, PEARS AND QUINCES

Number and Name of Spray	Pests	When to Spray	Materials to Use
1. Dormant Spray	San Jose Scale.	Early in fall, or in spring before buds open.	Concentrated lime-sulphur, Scalecide, or lubricating oil emulsion.
2. Cluster Bud or Scab Spray	Apple Scab.	When buds separate and show pink, but before blossoms open.	1⅛ gallons commercial lime-sulphur to 50 gallons of water.
3. Calyx Spray	Codling moth or worm, curculio and apple scab	When ⅞ of petals have fallen.	1 lb. dry arsenate of lead, 1⅛ gallons commercial lime-sulphur to 50 gallons of water.
4. First Cover Spray	Blotch, scab, curculio and codling moth.	Finish spraying by 21st day after petals have fallen.	1 lb. dry arsenate of lead and 4-4-50 Bordeaux mixture.
5. Second Cover Spray	Blotch, codling moth and curculio.	About 15 days after No. 4.	1 lb. dry arsenate of lead and 4-4-50 Bordeaux mixture.
6. Third Cover Spray	Bitter rot, black rot, phoma spot, codling moth and curculio.	About 15 days after No. 5.	1 lb. dry arsenate of lead and 4-4-50 Bordeaux mixture.
7. Fourth Cover Spray	Bitter rot, phoma spot, black rot, codling moth and curculio.	About 3 weeks after No. 6.	1 lb. dry arsenate of lead and 4-4-50 Bordeaux mixture.
8. Fifth Cover Spray	Bitter rot, black rot, codling moth, phoma spot and curculio.	About 3 weeks after No. 7.	1 lb. dry arsenate of lead and 4-4-50 Bordeaux mixture.

PEACHES AND PLUMS

The Spray	What For	Materials
1. Dormant Spray. Spray before buds show pink.	San Jose scale, leaf curl and other disease spores.	Concentrated lime-sulphur, Scalecide or lubricating oil emulsion.
2. Shuck Spray. Spray when most of the shucks have fallen.	Curculio, scab and aphis.	1 lb. dry arsenate of lead and self-boiled lime-sulphur or atomic sulphur.
3. Three Weeks Spray. Three weeks after No. 1.	Curculio, brown rot and scab.	1 lb. dry arsenate of lead and self-boiled lime-sulphur or atomic sulphur.
4. Late Summer Spray. Spray about one month before fruit ripens.	Brown rot and scab.	1 lb. dry arsenate of lead and self-boiled lime-sulphur or atomic sulphur.

GRAPES

When to Spray	Just before blooms come out	Just after fruit sets	2 weeks to 18 days later than second.	2 weeks to 16 days later than third.
To Control	Berry moth, leaf hopper, anthracnose, mildew, black rot.	Berry moth, leaf hopper, anthracnose, mildew, black rot.	Berry moth, anthracnose, mildew, black rot.	Berry moth, anthracnose, mildew, black rot.
Spray to Use	Bordeaux mixture plus 1 lb. powdered arsenate of lead.	Same as first.	Same as first.	Same as first.

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To convince you here is the biggest fur bargain in years, money refunded after five full days wear and use if not $15 value. No money now, simply send name. Pay postman $3.85 and postage when delivered. State color: Brown Fox or Black Wolf. Rush order today!

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NEW LAMP BURNS 94% AIR

Beats Electric or Gas

A new oil lamp that gives an amazingly brilliant, soft, white light, even better than gas or electricity, has been tested by the U. S. Government and 35 leading universities and found to be superior to 10 ordinary oil lamps. It burns without odor, smoke or noise—no pumping up, is simple, clean, safe. Burns 94 per cent air and 6 per cent common kerosene (coal oil).

The inventor, F. O. Johnson, 609 W. Lake St., Chicago, Ill., is offering to send a lamp on 10 days' FREE trial, or even to give one FREE to the first user in each locality who will help him introduce it. Write him today for full particulars. Also ask him to explain how you can get the agency, and without experience or money make $250 to $500 per month.

A Recipe for Southern Prosperity

WHEN every farmer in the South shall eat bread from his own fields and meat from his own pasture, and disturbed by no creditor and enslaved by no debt, shall sit amid his teeming gardens and orchards and vineyards, and dairies and barnyards, pitching his crops in his own wisdom and growing them in independence, making cotton his clean surplus, and selling it in his own time, and in his chosen market, and not at a master's bidding—getting his pay in cash and not in a receipted mortgage that discharges his debt, but does not restore his freedom—then shall be the breaking of the fullness of our day.

HENRY W. GRADY.

Low Cotton Yields Per Acre in 1923

COUNTY Agent John C. Anderson, of Wake Coupnty, N. C., calls attention to the fact that six of our principal cotton growing states, due largely to unfavorable seasons, produced *less than 100 pounds of lint cotton per acre* last year, as follows:

Alabama, 91; Arkansas, 97; Georgia, 82; Mississippi, 89; Oklahoma, 90; Tennessee, 90.

This was much less than their five year average and none of the states produced less than 100 pounds per acre in 1922.

Of the other four chief cotton-producing states three produced from 100 to 200 pounds per acre—Louisiana, 125; South Carolina, 187; Texas, 146—while North Carolina (290 pounds per acre) was the only so-called "cotton state" to pass the 200-pound mark.

With normal seasons the same acreage of cotton in 1924 which the South planted in 1923 might produce a crop large enough to materially lower cotton prices.

Feeding Terms Defined

Ash—Mineral matter in feeds. The portion of a feeding stuff which remains after it has been thoroughly burned. Essential for proper development of the bones and other tissues.

Balanced Ration—A combination of feeds containing **digestible** nutrients in such proportions and amounts as will best nourish the animal with least waste of materials.

Carbohydrates—A group of nutrients rich in carbon and also containing oxygen and hydrogen in the proportions in which they form water. The starches and sugars of feeding stuffs. Used for the production of heat and energy and the formation of fat in the body. The carbohydrates are the sum of nitrogen-free extracts and fiber.

Concentrates—The more nutritious or concentrated portions of rations. The grains, like corn and oats and mill products, like cottonseed meal, wheat bran, etc.

Corn Fodder—In the South, the green leaves of the corn plant cured as hay. In the North, the corn plant (without the ears) cured—corn stover.

Crude Fiber—The woody portion of feeds. The frame work or walls of cells of plants. Hard to digest and when in large amounts lowers the value of the feed. Included under carbohydrates.

Digestible Nutrients—The portions of a feedstuff that are are dissolved or digested by the animal. The crude protein, carbohydrates, fats, etc., in a feed that are digested, dissolved or used by the animal.

Dry Matter—That portion of a feeding stuff remaining after all the water contained in it has been driven off by heat.

Fats—Fat or oil, wax, etc. The ether extract, or fat as it is generally called, serves much the same purpose in the body as the carbohydrates.

Maintenance Ration—Sufficient feed to maintain a resting animal for a period of 24 hours without gaining or losing weight.

Nitrogen-free Extract—Portion of a feed remaining after deducting moisture, protein, crude fiber, and ether extract or fat. Starches, sugars, gums, etc. Nitrogen-free extract and crude fiber combined form the carbohydrates.

Nutrient—Any part of a feedstuff capable of nourishing animals.

Nutritive Ratio—The proportion or relative amount of digestible protein to the carbohydrates and fats in a ration, the fats having been multiplied by 2.25 and added to the carbohydrates. For instance, 2 pounds of digestible protein to .6 pounds (.6×2.25=1.35) of fats, plus 10.65 pounds digestible carbohydrates; or 2 pounds protein to 12 pounds (.6×2.25+10.65=12) total fats and carbohydrates make a nutritive ratio of 2 to 12 or 1 to 6, generally written 1:6.

Protein—The portion of feeding stuffs containing nitrogen. Essential for the building of all the tissues of the animal body. The total nitrogenous material in vegetable or animal substances, obtained by multiplying the total nitrogen by 6.25.

Ration—The amount of feed given to an animal during 24 hours.

Soiling—Feeding a crop when green, or a system of feeding animals with fresh grass or other plants cut and fed in a barn or enclosure.

Stover—Corn plants cut when mature but not entirely dead and cured, from which the ears have been removed. Sometimes applied to any dried forage plant after the seeds have been removed.

Succulent Feed—Feed that is fresh or green, or juicy, that contains much water, such as grass, silage, [illegible] c.

"Barrett Shingles on the house, Barrett Roll Roofing on the barn—those roofs are off my mind."

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On a Cost-per-Year-of-Service Basis

With Spring just over the hill, you'll soon be out in the fields. This is the time, then, to get your buildings fixed up. And roofs come first. This time why not put on roofs that will last? Get this matter of roofs off your mind—put on Barrett Roofings. Here are roofs that *last* for good "horse-sense" reasons.

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The most popular of plain-surfaced roll roofings. Made of best grade roofing-felt, thoroughly saturated with high-grade waterproofing material. Under surface is protected by rot-proof sealback. Tough, pliable, elastic, durable, and low in price. Easy to lay. Nails and cement in each roll.

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A beautiful and enduring roll roofing. Mineral-surfaced in red, green, or blue-black. Has rot-proof seal-back. Nails and cement in each roll. Very popular for bungalows, cottages, garages, and all farm buildings.

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These "Giants" for wear and service are handsome enough for the expensive home, economical enough for small farm house or cottage. Their weather side is mineral-surfaced in beautiful shades of red, green, or blue-black. This fadeless mineral surface resists fire and never needs painting. Their base is extra heavy roofing-felt thoroughly waterproofed. Because of this extra-thick, extra-rigid base, these shingles can be laid right over the old roof—a big saving on reroofing jobs. Size 8 x 12⅜ inches. Are laid easily and without waste.

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Four shingles to a strip. Mineral-surfaced in red, green, or blue-black. Two sizes—10 inches and 12½ inches deep, both 32 inches long. The 12½-inch Multi-Shingle, laid 4 inches to the weather, gives three-ply roof—the 10-inch gives two-ply roof.

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Bees Pay Their Keeper

THERE is a tendency among bee enthusiasts, outside the ranks of commercial beekeepers, to urge the ownership of one or two colonies of bees on every farm. We believe this to be a mistake. Beekeeping is easily learned and is fascinating, and may well be taken up in a small way by anyone, but should not be undertaken by one who has not a real interest in bees, nor continued in by one whose other interests lead him to neglect them. Neglected bees are unprofitable to their owner, and from the standpoint of disease are a dreaded menace to commercial beekeeping. To him who enthusiastically cares for them, however, one or two colonies are a source of profit and endless pleasure, and such is welcomed always by beekeepers.

Don't Worry About Stings

ONE NEED have no great fear of stings. Bees, especially the Italians, have their working characteristics far better developed than their stinging propensities. They will of course sting on provocation, but on warm days when there is a honey flow on, they will hardly pause in their hurry to gather the sweets, to notice the presence of the bee keeper as he moves the frames. One should not open the hives on cool days or when there is a dearth of nectar flow, more than necessary. Use a puff of smoke from a smoker at the entrance before opening and after opening, only an occasional puff over the frames whenever the bees seem inclined to arise from the frames to make an inquisitive flight to the head of the operator. Do not suffocate the bees by excessive smoking.

Do not disdain the head-net. It gives confidence to the operator at all times, and saves him an occasional sting. We never allow ourselves to be shamed out of its use by the beekeeper who "is never stung," or "never used a screen-cage." Gloves may be worn if desired. Invariably, however, they will be finally laid aside when one learns the really amiable disposition of the bees. As a final thought on this subject, let the operator be encouraged to know that one comes hardly to notice an occasional sting.

Buy Them By the Pound

THE BEST plan in making a start with bees is to buy them in three-pound packages. They are delivered in a screen box, with queen caged separate and are to be introduced with the queen into a hive which the buyer himself furnishes. Purchase them from a reliable producer, and unless you are acquainted with the operation, which is simple, obtain information from your Agricultural College before purchasing.

Often one may find a person in his own community who is willing to sell a colony, or will supply a swarm in season. Be sure that such bees are free from disease and in a thrifty condition. Bees may be obtained from trees, but are hardly worth the trouble required. Likewise bees in box hives or gums, are worth very little, because to be profitable they must be transferred to a modern hive.

No one taking up beekeeping for pleasure or profit should consider anything but a modern hive with moveable frames. Bees kept in hollow log gums, nail kegs, kerosene cans, or boxes, are a menace to other colonies because of disease; they brand the owner as shiftless; they are unprofitable; and they rob beekeeping of its pleasures, because the combs cannot be examined and the bees observed at work. More than all this, they are legislated against in most states and it is an actual breach of law to possess them.

Modern hives with moveable frames can be had in either eight or ten frame size. The ten-frame has become standard for most sections. They should be dove-tailed to prevent opening of the joints by warping, which might induce robbing by other bees. Hives bought thus from established concerns are of selected lumber, and so cheap that, all things considered, one can hardly afford to build his own. Lastly, they should be kept painted.

The frames furnished with these hives should be wired properly, and full sheets of foundation used. Foundation properly placed in the frames insures straight combs that can easily be lifted out at any time to observe the condition of the bees. They encourage the rearing of large numbers of workers and few drones. The wiring prevents stretching and consequent deforming of the comb that may result in excessive numbers of drones.

Italian bees are the ones recommended. They are of quiet disposition, cling to the frame when being handled, keep the hive clean, and are good workers. A black queen is excitable, and will invariably run to hide when the hive is opened. An Italian queen is almost always easily found.

If the bees are of any other variety, the colony may soon be worked over into Italians by purchasing an Italian queen of a reputable breeder. Kill the old queen and introduce the new one in her place. Instructions for doing this will be found on the package in which the new queen is delivered.

Make Your Start This Spring

THE BEST time of the year for the beginner to secure his bees is in the spring. Unless he can get the advice of a good beekeeper in his own section acquainted with the seasonal honey flow, he must go at his first spring's operations a trifle blindly. He must bear in mind, as a first principle, that in most sections the nectar flow comes on at a rather definite season, and may last for but a few days and that his chances of obtaining a large honey crop will depend on his having a large force of working bees ready to bring in this nectar at the time it appears. If this definite time is known, one should seek to stimulate heavy brood rearing about seven weeks before. There will then be the maximum number of workers when most needed.

Unless increase in number of colonies is desired, prevent swarming as much as possible. Remember swarming is always at heavy expense of honey production. The best way to prevent swarming is to allow plenty of room for the increasing number of bees and for the honey they bring in. This is done by providing additional supers with frames of foundation. Also when the bees have become very numerous, especially in very warm weather, additional ventilation should be allowed by putting three-eighths inch blocks between the hive body and the bottom board at each corner.

Little need be said concerning the arrangement of hives. It will be enough to have them set on brick laid edgewise and so they are shaded from the mid-day sun. Avoid deep shade, however, and if possible arrange so they may receive the very early morning and late evening sun. Arrange the entrances so as to be toward the south or east in winter; beyond this, it is further desirable to have a windbreak against the north and west winter winds. Beyond this, winter shelter, or packing, is not greatly required in our Southern states, except in the higher mountain sections, and here it can be provided by tying several thicknesses of newspaper around the hive body and laying some others on the hive body and under the cover.

Be sure that at least forty pounds of honey is left as food for the bees through the winter. Otherwise they may starve before the nectar flow begins in the spring.

The production of section honey requires a very heavy honey flow, and some experience on the part of the beekeeper. We, therefore, suggest until such experience has been obtained, the production of extracted honey only, or of chunk honey; that is, pieces of clear comb honey, cut from the frames and put in jars, the space between combs then being filled by pouring in extracted honey.

These do not include all the points to be observed in beekeeping, but are believed to be most important for the beginner. The remainder he will learn by doing and studying; learn from the bees themselves as you work with them. Study them. Talk with experienced beekeepers. Join a live beekeepers' association. If there is none in your community, use your influence to have one organized. And lastly, subscribe to and read several beekeeper's periodicals as well as government bulletins.

Magazines of Interest of Beekeepers

American Bee Journal, Hamilton, Ill.

Gleanings in Bee Culture, Medina, Ohio.

Texas Beekeepers' Item, New Braunfels, Texas.

Dixie Beekeeper, Waycross, Georgia.

Domestic Beekeeper, Northstar, Mich.

Books of Interest to Beekeepers

Comstock, Anna B.—"How to Keep Bees."

Cook, A. J.—"Manual of the Apiary."

Dadant, C. P.—"First Lessons in Beekeeping."

Doolittle—"Scientific Queen Rearing."

Hutchinson, W. Z.—"Advanced Bee Culture."

Langstroth—"The Honey Bee."

Nuller, C. C.—"A Thousand Answers to Beekeeping Questions."

Pellett, F. C.—"Productive Beekeeping."

Pellett, F. C.—"Our Backdoor Neighbors."

Phillips, E. F.—"Beekeeping."

Root, A. I. and E. R.—"A. B. C. and X. Y. Z. of Bee Culture.

U S. Bulletins On Beekeeping

(U. S. Department of Agriculture, Washington, D. C.)

"Bees"—Farmers' Bulletin Number 447.

"Outdoor Wintering of Bees"—Farmers' Bulletin No. 695.

"Transferring Bees to Modern Hives"—Farmers Bulletin No. 961.

"Wintering Bees in Cellars"—Farmers' Bulletin No. 1014.

"Control of American Foul Brood"—Farmers' Bulletin No. 1084.

"Control of European Foul Brood"—Farmers' Bulletin No. 975.

"The Treatment of Bee Diseases"—Farmers' Bulletin No. 442.

"Beekeeping in the Buckwheat Region"—Farmers' Bulletin No. 1216.

"Beekeeping in the Tulip-tree Region"—Farmers' Bulletin No. 1222.

"The Preparation of Bees for Outdoor Wintering"—Farmers' Bulletin No. 1012.

"Swarm Control"—Farmers' Bulletin No. 1198.

"Honey and its Uses in the Home"—Farmers' Bulletin No. 653.

Most of the state experiment stations have one or more bulletins on phases of beekeeping more or less peculiar to their local conditions. Communicate with your state experiment station for lists of these.

R. R. REPPERT.

Jim Pat walked into a shoe store the other day and said to the clerk, "I would like to see a pair of shoes that would fit my feet." The clerk looked him over and said, "So would I."

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Wells & Richardson Co., Burlington, Vt.

Outfit for Beginners in Beekeeping

IT is only with experience that one is able to judge of the comparative merits of different hives and other equipment, but the beginner usually desires definite information concerning the equipment which should be purchased. The giving of such advice is attended with some risk, for one hesitates to advise an equipment which may be discarded when the beekeeper becomes more familiar with the business. In the following lists the choice is made on the basis of the equipment which is preferred by the majority of good beekeepers and not alone on the author's personal preferences.

General equipment—Bee veil.

Smoker—medium size.

Gloves (for the beginner only).

Some kind of hive tool—a screwdriver will answer.

For each colony—Bottom board of ⅞-inch material.

10-frame Langstroth hive—preferably single-walled.

Self-spacing frames, punched for wiring.

Medium brood foundation, 1¼ pounds for each hive body.

Telescope cover.

From comb-honey production (minimum)—3 supers for 10-frame hive (if possible one made up for sample). The 4¼ inches square section, 1⅞ inches wide, is usually preferred. The purchase of only one super to the colony is to be condemned.

Thin foundation, 2 ounces to super. For the beginner, the use of small starters of foundation is sometimes preferable. If full sheets are used, 8 ounces to the super should be provided.

For extrated honey production—2 extra hive bodies identical with those used in brood chamber, with full sheets of comb-foundation.

One 2-frame non-reversible extractor.

One Bingham uncapping knife.

For bulk comb-honey production—Three 10-frame supers with shallow extracting frames.

Half pound thin-super foundation for each super.

Contents of Wagon Box

MULTIPLY length in inches by width in inches and this result by height in inches. Divide this result by 2,150.42. This will give you the exact number of bushels.

A common wagon box is about 10 ft. long and 3½ feet wide, and will hold about 2 bushels for every inch in depth.

To find the approximate number of bushels, multiply the depth of the wagon box in inches by 2, and you have the number of bushels.

If the wagon box is 11 feet long, multiply the depth in inches by 2 and add one-tenth of the number of bushels to itself.

A bushel to the inch is calculated for corn on the cob.

Figuring Horse Power of Pulley

SHAFTING—Where several machines are to be operated from one power unit, it is necessary to provide shafting and pulleys. The following rule by Thurston is necessary in figuring size, speed, etc., of pulleys:

$$\text{H. P.} = \frac{d^2R}{55}$$

when H. P. is the horse power transmitted, d is the diameter of shaft in inches, R the revolutions per minute.

Finding the Diameter and Speed of a Pulley

FROM the following formulas and conditions one may figure the speed or diameter of any given pulley.

With the speed of the driver, the speed of the driven and the diameter of the driver given, the diameter of the driven may be found.

Diameter of the driver multiplied by speed of the driver divided by speed of the driven equals diameter of driven.

Given the speed of the driven multiplied by diameter of the driven divided by the speed of the driver equals diameter of driver.

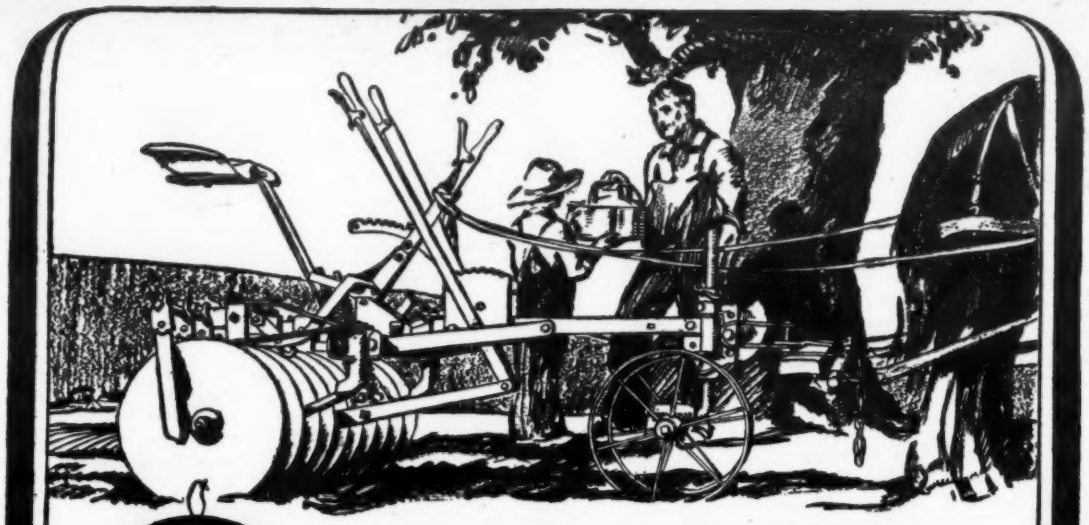
Given the diameter of the driven multiplied by the speed of the driven divided by diameter of the driver equals speed of the driver.

Given the diameter of the driver multiplied by speed of the driver divided by diameter of the driven equals speed of the driven.

Capacity of Wagons

THE following table is the average capacity of wagons as furnished by several manufacturers:—

Wagons with skeins		With steel axles	
Size of Skein	Capacity	Size of Axle	Capacity
2 1-8	800	1 1-16	600
2 1-4	1000	1 1-8	800
2 3-8	1200	1 1-4	1200
2 1-2	1600	1 3-8	1600
2 3-4	2000	1 1-2	2250
3	3000	1 5-8	3000
3 1-4	4000	1 3-4	4000
4	8500	2	5000
		3	15000



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A better disc harrow for 10 real reasons

1 Spring pressure adjustment at inside ends of gangs.
2 Self-tightening disc-spool construction.
3 Extra heavy gang bolts.
4 Even penetration in uneven ground.
5 Positive lubrication from bottom of bearings.
6 Full-floating flexible gangs.
7 No twisting strain on bearings.
8 Minimum running friction.
9 Easy to ride.
10 Easy to handle.

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BECAUSE of its easy riding and easy handling the user of an Avery Volcano Disc Harrow does a full day's work easily. Noon finds man and team still fresh. And even by night they are not tired.

This is possible because of the perfect balance, spring pressure adjustment, flexible gangs, bottom lubrication of bearings, even penetration in uneven ground—and many other advantages found only in the Avery Volcano.

Read the 10 Real Reasons—in panel at left.

Until you have seen and tried the Avery Volcano you cannot possibly realize what a really scientific, modern, improved disc harrow will do. The Avery Volcano has all the improvements developed since B. F. Avery designed the first Avery implement in 1825—nearly a century ago. It is built with scientific precision in the finest, most complete and modern implement factory in the world.

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There is a full line of famous Avery walking, riding and tractor plows, tillage implements and Champion harvesting and hay machines

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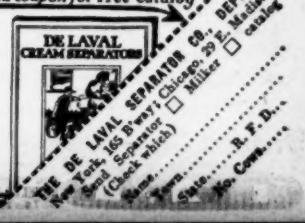

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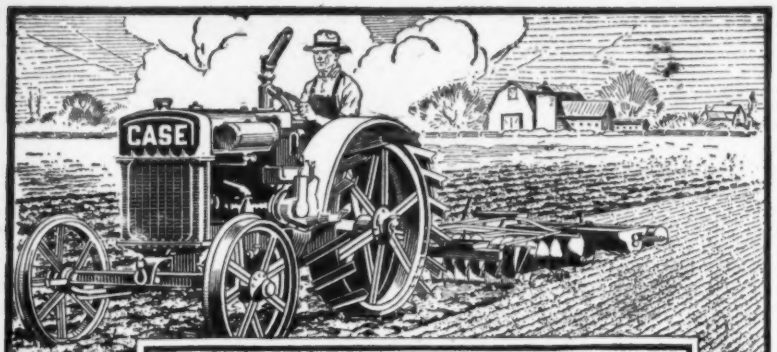

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How to Control Crop Pests

Grain Smuts

FROM the standpoint of control, grain smuts may be divided into three classes: (1) those controlled by surface sterilization of the seed; (2) those controllable by a hot water treatment; and (3) those for which no satisfactory control method has yet been devised.

Belonging to the first class are both smuts of oats, covered smut or bunt of wheat, covered smut of barley, smut of rye, and kernel smut of sorghum cane, certain grain sorghums, broom corn, and Sudan grass. Seed of these crops should always be treated with formaldehyde before planting.

In the second class are found the loose smuts of wheat and barley. Farmers are not advised to attempt to control these smuts by seed treatment unless a central treating plant can be erected and the treatment made a community affair. A closer control of the water temperature is required than can usually be secured with the ordinary farm equipment.

Among the uncontrollable smuts are those of corn and the head smut of sorghum. In the case of corn, at least, infection is from the soil and the air, and occurs at various stages of the growth of the crop. Such control measures as can be used consist in destroying infected parts and in avoiding the use of contaminated manure on the crop in question.

Never use dirty sacks, bins, or machinery for handling treated seed without first thoroughly soaking them with strong formaldehyde (1 pint in 10 gallons) or scalding with boiling water.

Crop	Dilution of Solution	Duration of Treatm't
Barley	1 part in 320*	½ to 4 hrs.
Broom corn	1 part in 240**	2 to 4 hrs.
"Cane" (sorgo)	do	do
Kafir	1 part in 240	½ to 2 hrs.
Millet (except Proso)	do	do
Oats	do	do
Rye	1 part in 320	10 to 30 min.
*Sorghums	1 part in 240	2 to 4 hrs.
Sudan grass	do	do
Wheat	1 part in 320	10 to 30 min.

*Equivalent to 1 pint in 40 gallons, liquid measure.
**Equivalent to 1 pint in 30 gallons, liquid measure.
***Milo and Feterita not known to be affected by kernel smut.

Spread the grain out on a smooth, clean floor or wagon body, and sprinkle the solution on it with an ordinary watering pot. Shovel the grain back and forth until it is thoroughly damp. One gallon of the solution should treat about three bushels of grain. When all the grain is thoroughly moistened, shovel it into a pile and cover with canvas or sacks. Allow it to stand for the required length of time and then spread it out, stirring frequently until dry.

General Pests

CUTWORMS—These hatch from eggs of moths, usually laid in grassy or weedy lands. Becoming part grown by fall, they grow slowly through winter, become more active and destructive in early spring, become grown and cease damage by the end of May.

Remedies—Clean culture, plow under grass and weeds in late summer or fall. If not desirable to leave the ground bare through the winter, sow a crop after the plowing. Late planting or setting will avoid much cut-worm damage.

Weevil—Important with all grains, beans, peas, etc.

Remedies—Prompt threshing and tight storage of small grains; shucking of corn in field and separation of infested ears; clean bins. Beans and peas can be mixed with equal quantity dry dust lime for storing. To treat stored grain, place in air-tight bins, boxes, barrels or other containers and sprinkle carbon disulphide on top at the rate of 4 pounds to 1,000 cubic feet of space in the container, close tightly and leave closed for 24 hours. The material is highly inflammable and explosive, and no fire, lighted match, pipe, etc., should be brought near. If bin is not air-tight, use more of the disulphide.

Amount Carbon Disulphide needed for two fumigations:

For 100 bu. unshucked corn—2.8 lbs.
For 100 bu. slip-shucked corn—2 lbs.
For 100 bu. shucked corn—1.6 lbs.

Cotton Insects

Leaf Louse—More destructive in cool seasons, causing distorted leaves, usually disappearing with hot weather in June.

Remedies—Could be controlled by spraying with tobacco preparation known as "Black-Leaf-40" one part to 800 parts water, or by laundry soap in water at the rate of 1 pound to 4 gallons, but generally such treatments are impracticable. They are usually attacked by large numbers of lady-beetles and parasites which control them before damage becomes wide-spread.

Red Spider—Causes a form of "rust," followed by shedding of leaves. Worse in long dry spells. Feeds on many plants, often starting from pokeweed.

Remedies—Pluck the first affected leaves into an oil-soaked sack, take out of field and burn. Isolate infested section by taking a few stalks out ahead of infection to check spread along row. Spray with ready-made lime-sulphur, 1 gallon to 60 gallons of water. But the most important point in preventing red spider is to keep down all growth of pokeweed near cotton fields.

Boll-worm—Same insect as ear-worm in corn. Although the total damage by it to cotton is large, yet the damage per acre is seldom enough to justify spraying or dusting. Winter plowing as mentioned for ear-worm in corn will help.

Boll Weevil—Remedies consist of early planting of early varieties, hastened to maturity by ample use of quick acting fertilizers and abundant cultivation. Methods of poisoning recently developed are described in a Farmers' Bulletin of the United States Department of Agriculture.

Corn Insects

Bud-worm—This is the worm stage of the spotted melon beetle, worse on low grounds in cool, belated seasons.

Remedies—Time of planting is important. Late planting will avoid some injury by this, as well as by cutworms and stalk-borers. Some farmers claim to avoid it by very early planting. Practice rotations. High lands are less infested. A liberal amount of seed may give stand in spite of bud-worm. Ample cultivation and liberal fertilization helps.

Stalk-borer—Two generations, both attacking early-planted corn, only one attacking late-planted corn. Winters in base of corn stubble.

Remedies—Planting after about May 25 will avoid large part of the damage in the latitude of the Upper South. Plowing out stubble so as to expose to changes of weather during winter will reduce the number to appear in spring. Practice rotations.

Ear-worm—Destructive everywhere, infesting ears, especially at the top. The same insect is called by other names when infesting other crops—cotton boll-worm, tobacco bud-worm, tomato fruit-worm. It winters in the ground.

Remedies—Fall and winter plowing, where badly infested crops have grown; pinching or cutting off tips, in small garden patches; dusting young silks with mixture of equal parts of powdered arsenate of lead and dry lime in corn for table use. There is no really effective treatment in the field (other than plowing) for general crop corn. The measures mentioned are not as good as could be wished.

Treat Watermelon Seed Before Planting

WHEN watermelon seed is harvested from diseased melons, it is likely to be contaminated with anthracnose spores, with the result that the young plant is almost certain to be affected with the disease. This can be prevented by disinfecting the seed before planting. It must be remembered, however, that the fungus may live over winter on dead vines and fragments of the fruits of cucumber, muskmelon, and watermelon, so that even if the plant is healthy at the start the disease may obtain a foothold in the field from a source other than the seed. On account of the fact that infection may come about in several ways, seed treatment alone does not insure a healthy crop. It is a measure that should be carried out in connection with a good spray program.

Method of Treating the Seed

A 1 to 1,000 mercuric-chloride (corrosive sublimate) solution should be used for treating watermelon seed. This may be prepared from the standard mercuric-chloride tablets sold by druggists. Mercuric chloride when taken internally is extremely poisonous. As the solution will attack various metals, it should be used in either a glass, earthenware, or wooden receptacle.

It will be found convenient to put the seed to be disinfected in a loosely woven bag, care being taken not to fill this bag more than three-fourths full, as some space will be needed to allow for the swelling of the seed. Immerse the seed for 5 minutes and no longer. Then wash thoroughly in running water for 15 minutes or in several successive changes of water. The seed must be stirred while being treated and also during the washing process. After washing, the seed should be spread out so that it will dry rapidly. If it is to be replaced in the seed bag, this must also be immersed in the mercuric-chloride solution and then washed and dried. The same solution should not be used for treating more than two lots of seed.—U. S. D. A.

To Control Scab on Irish Potatoes

SOAK the potatoes for two hours in formalin solution before planting. Prepare this by adding 1 pint of 40 per cent formaldehyde to 30 gallons of water. Place the potatoes in a gunny sack and submerge in a barrel of the solution. After being submerged for two hours, spread the potatoes out to dry. Then cut and plant.

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How to Succeed With Lawns in the South

LAWN grass is best sowed in early fall so that it can become established before heavy freezing weather, or in early spring before the sun becomes too hot. Good results with grass seed cannot be secured in very cold or in extremely hot weather. The cool, moist seasons of the year are the times to get a "catch" of grass.

Bermuda makes a good lawn if the roots are set in late spring. This grass is a heat-lover and will not make any growth in cold weather, but makes its best growth in hot, moist weather. It makes a good summer lawn if frequently mowed.

Bermuda will give a pretty lawn in summer, but turns brown in winter. To overcome this trouble so as to have green grass in winter, sow rye grass thickly on top of Bermuda each fall. Before and after sowing, scratch up the sod with a hand rake, so as to give a little soil for the seed to come in contact with. If water is available, give a heavy sprinkling immediately after sowing in order that the seed may be pressed down against the soil particles. If one can sow just before a rain the same purpose will be served.

Blue grass does little in the sandy parts of the South, unless in shady places and where the soil is well limed. To get a good turf, sow seed very liberally (3 or 4 bushels of seed per acre).

Japan clover (lespedeza), white clover, and even bur clover are valuable in lawns in some sections of the South.

Preventing Watermelon Diseases

LOSS from **wilt** is avoided by planting on land not previously used for watermelons, with precaution against the use of infested stable manure and spread by drainage water and livestock.

Losses from **root-knot** can be prevented by the use of land free from infestation by this pest.

Anthracnose is controlled by thorough spraying with Bordeaux mixture during the month preceding the maturity of the crop.

For **stem-end rot** the most important measure is the disinfection of the cut stems as the melons are being loaded into cars.

Infection by the organisms which cause **anthracnose, gummy stem blight,** and **ground-rot** may be reduced by seed disinfection, provided the crop is planted on soil that is free from these diseases, and in case barnyard manure containing the disease-producing organism is not applied.—U. S. D. A.

Pasture Pointers

DO not allow the land to wash or gully. Pasture crops cannot establish themselves on moving land.

2. Do not graze the pasture too closely or allow animals on the field during wet weather. It is just as possible to drive out the pasture plants by too heavy grazing as it is to exterminate weeds in the pasture by frequent mowing. The plants should be allowed to become well established before they are grazed very much. Moderately close grazing after the plants have become well established is all right.

3. Run the mower over the field often enough during July and August to prevent the non-pasture plants from making seed.

4. Bermuda pastures, owing to the growing habit of the grass, become sod bound after a few years and produce a reduced amount of grazing. To prevent or improve this condition the pasture should be thoroughly disked or plowed every year or so. This cultivation should be given at a time when moisture is plentiful.

How to Fight the Hessian Fly

THE methods for combating the Hessian fly are, in brief, as follows:

1. Practice crop rotation. Do not sow wheat on stubble if it is possible to avoid doing so.

2. Plow under all infested stubble and ruined wheat, where practicable, soon after harvest.

3. Destroy all volunteer wheat by harrowing, disking, plowing, or some other method.

4. Plow all land to be sowed to wheat as early and deeply as existing conditions permit, and prepare a thoroughly pulverized and compacted seed-bed.

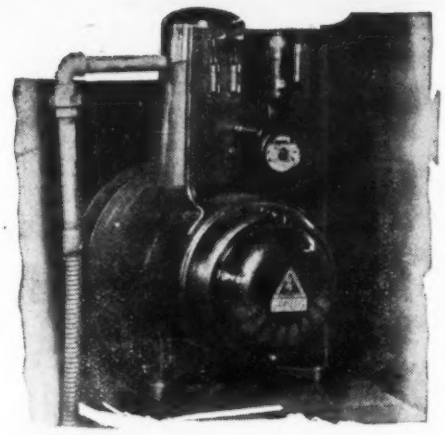
5. Conserve moisture against a period of drouth at seeding time.

6. Use good seed.

7. Fertilize.

8. Sow wheat during the fly-free period as advised by your farm adviser or state experiment station.—United States Department of Agriculture.

A RECENT cartoon showing an airplane in the air with the whole family in it headed for a picnic and showing little Johnny saying "Kin I run it a while Pa?" is interesting. It further showed automobiles down below on the earth, running into each other, killing and maiming people, and Pa is shouting down to the folks on earth, "Why don't you come on up in the air, where it is safe?" While this cartoon was meant as fun, yet it apparently had some truth in it, because it would seem that it is beginning to be safer up in the air than on the streets and highways.



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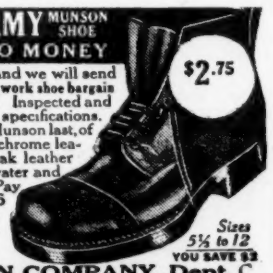

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How to Home Mix Fertilizers

SOME advantages in home-mixing of fertilizers are:

1. A knowledge of the kind and quality of plant food bought.

2. The use of the different plant foods in any proportion desired.

3. Generally, a saving in the cost per ton.

Some of the disadvantages are:

1. Hard to secure raw materials.

2. The mixing is not as perfect as factory mixed goods.

3. Not ground as fine as manufactured products.

The table below will be very helpful in making home mixtures. For example: To make an 8-2-2 fertilizer using 16 per cent acid phosphate, 15 per cent nitrate of soda, and 50 per cent muriate of potash, use 1,000 pounds of acid phosphate, 266 pounds of nitrate of soda, 80 pounds of muriate of potash, and 654 pounds of filler, such as soil, sand or muck.

Caution: Certain materials should not be mixed together and left standing. Do not mix lime or basic slag with ammonium sulphate or barnyard manure. W. F. Pate, Experiment Station.

QUANTITIES OF FERTILIZING MATERIALS TO USE TO GIVE DEFINITE PERCENTAGE IN A TON OF FERTILIZER*

Ingredient	1 P.Ct.	2 P.Ct.	3 P.Ct.	4 P.Ct.	5 P.Ct.	6 P.Ct.	7 P.Ct.	8 P.Ct.
Carriers of Nitrogen (N):—	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Nitrate of soda (15 per cent N)	133	266	400	532	666	800	933	1066
Nitrate of Ammonia (30 per cent N)	66	133	200	266	333	400	466	533
Sulphate of Ammonia (20 per cent N)	100	200	300	400	500	600	700	800
Cottonseed Meal (7 per cent N)	285	571	856	1142	1428	1714	2000	....
Dried Blood (10 per cent N)	200	400	600	800	1000	1200	1400	1600
Fish Scrap (10 per cent N)	200	400	600	800	1000	1200	1400	1600
Calcium Cyanamid (15 per cent N)	133	266	400	532	666	800	933	1066
Carriers of Potash (K2O):—								
Sulphate of Potash (50 per cent)	40	80	120	160	200	240	280	320
Muriate of Potash (50 per cent)	40	80	120	160	200	240	280	320
Kelp Ash (30 per cent)	66	133	200	266	333	400	466	533
Nebraska Lake Potash (22 per cent)	90	180	270	360	450	540	630	720
Kainit (12 per cent)	166	333	500	666	833	1000	1166	1333

Ingredients	6 P.Ct	7 P.Ct.	8 P.Ct.	9 P.Ct.	10 P.Ct.	11 P.Ct.	12 P.Ct.	13 P.Ct.	14 P.Ct.
Carriers of Phosphate (P2O5):	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Acid Phosphate (12 per cent)	1000	1166	1333	1500	1666	1833	2000	....	....
Acid Phosphate (14 per cent)	856	1000	1142	1285	1428	1571	1714	1857	2000
Acid Phosphate (16 per cent)	750	875	1000	1125	1250	1375	1500	1625	1750
Basic Slag (18 per cent)	666	777	888	1000	1111	1222	1333	1444	1555
Ground Bone (23 per cent)	522	609	696	783	869	956	1043	1130	1217

*Where the total amount of materials mixed makes more or less than 2,000 pounds, multiply the amount decided to apply per acre by the number of pounds mixed and divide by 2,000. This will give the amount of fertilizer mixture to use per acre.

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IF AT any time during 1924 you wish to get first class books or pictures, consult the following list, cut out the blank and mail with your order:

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....All five of the above books for $1.
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....Cooper: Last of the Mohicans
....Defoe: Robinson Crusoe (Condensed)
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....Dickens: Oliver Twist
....Dickens: Tale of Two Cities
....Eliot: Mill on the Floss
....Eliot: Adam Bede
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....Hawthorne: Scarlet Letter
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What to Plant in the Garden
Each Month

THE directions given in the planting guide below apply to the **Upper South** generally — that is to say, Southern and Eastern Virginia; Piedmont, Middle and Eastern North Carolina; the uppr halves of South Carolina, Georgia, Alabama, and Mississippi.

For our **mountain region,** spring plantings should be delayed two to four weeks beyond the dates shown in this table, while plantings in summer and fall for the late crops should be made two to four weeks earlier.

Please note the meaning of the following letters and figures used after the name of any vegetable:

(E) means it is a little early and a little risky for planting, but advisable for those who want an early start;

(L) means it is rather late for planting but still advisable if a sufficient crop has not already been seeded;

(S) means that successive planting should be made at intervals of about two weeks.

"1" means plant only in **first** half of month indicated.

"2" means plant only in **last** half of month indicated.

JANUARY

Plant in Garden.—Garden peas-2 (E), onion sets-2 (E), Irish potatoes- (E).

Plant in Hotbed for Maturity.—Beet, lettuce (S), radish (S).

Plant in Hotbed for Later Transplanting.—Early cabbage-1, cauliflower-1, Brussels sprouts-1, beet-1, onion seed-1, early tomato-2.

Transplant to Garden.—Frost-proof cabbage plants, strawberry plants.

FEBRUARY

Plant in Garden.—Asparagus seed-2, beet-2 (E), cress-2 (E), lettuce-2 (E), kale-2 (E), mustard-2 (E), garden peas (S), onion sets, onion seed-2, Irish potato, radish-2 (S), rape-2, spinach-2, turnip-2.

Plant in Hotbed for Later Transplanting.—Late cabbage-1, eggplant-2, pepper, tomato, lettuce-1.

Transplant to Garden. — Early cabbage, cauliflower-1, Brussels sprouts-1, strawberry plants, beet.

MARCH

Plant in Garden.—French Globe artichoke, Jerusalem artichoke, asparagus seed, asparagus roots, bush snap beans-2 (E), beet, carrot, chive, sweet corn-2 (S), horse-radish roots, kale, kohl-rabi (S), lettuce (S), onion sets, parsley, onion seed, parsnips, wrinkled garden peas (S), Irish potato, radish (S), rape, spinach-1, New Zealand spinach, turnip.

Plant in Hotbed for Later Transplanting.—Eggplant-1, pepper-1, martynia-1, sweet potato, celery, leek.

Transplant to Garden. — Early cabbage-1, late cabbage-2, beet, onion plants, early tomato-2 (E), strawberry plants.

APRIL

Plant in Garden.—Bush snap bean (S), pole bean, bush Lima bean-2, running Lima bean-2, chard, sweet corn (S), black-eye cowpea-2 (S), cucumber, endive, kohl-rabi (S), muskmelon, okra-2, garden peas (L), squash, parsnips, salsify.

Plant in Open Bed for Later Transplanting. Celery, leak.

Transplant to Garden.—Eggplant-2, martynia-2, pepper-2, sweet potato-2, tomato.

MAY

Plant in Garden.—Bush snap beans (S), pole bean, bush Lima bean, running Lima bean, beet, chard, corn (S), okra, black-eye cowpea (S), pumpkin, cushaw or winter squash.

Plant in Open Bed for Later Transplanting. Brussels sprouts, cabbage, collard, tomato.

JUNE

Transplant to Garden.—Eggplant, pepper, sweet potato.

Plant in Garden.—Bush snap beans (S), pole bean, bush Lima bean, running Lima bean, witloof chicory, corn (S), muskmelon (L), okra, pumpkin, cushaw or winter squash.

Plant in Open Bed for Later Transplanting.—Brussels sprouts, cabbage, cauliflower, collard, tomato.

JULY

Transplant to Garden.—Collard, leek, tomato, sweet potato, Brussels sprouts, cabbage, cauliflower, collard, celery-2, leek, tomato, sweet potato.

Plant in Garden.—Bush snap bean (S) pole bean-1, bush Lima bean-1, witloof chicory-1, carrot, corn, cucumber, lettuce-2 (S), pumpkin-1, cushaw or winter squash-1, Irish potato, rutabaga turnip-2.

AUGUST

Plant in Garden.—Bush snap beans (S), beet, carrot-1, corn salad, kale, kohl-rabi (S), lettuce (S), garden peas (S), Irish potato-1, radish (S), spinach-2, turnip, rutabaga turnip.

Transplant to Garden.—Brussels sprouts, cabbage, cauliflower, celery-1, collard (L), tomato-1 (L).

SEPTEMBER

Plant in Garden.—Beet, corn salad, cress, kale, lettuce (S), mustard, onion seed, onion sets, parsley, garden peas-1, rape, radish (S), winter radish, spinach, turnip.

Plant in Open Bed for Later Transplanting. Cabbage for frost-proof plants, lettuce to set in frames.

OCTOBER

Plant in Garden.—Kale (L), mustard, onion sets, onion seed-1 (L), rape, radish, spinach-1 (L), turnip for salad.

Plant in Open Bed for Later Transplanting. Cabbage (L) for frost-proof plants.

Transplant to Garden.—Strawberry plants.

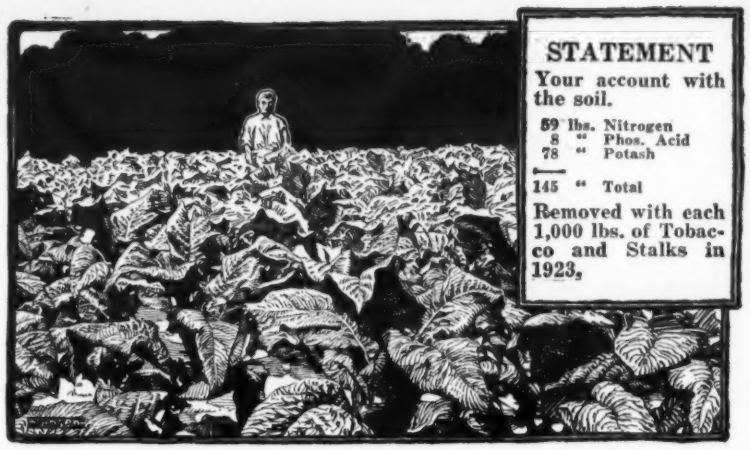
NOVEMBER

Plant in Garden.—Garden peas for earliest spring use, mustard-1 (L), rape-1 (L), asparagus roots, horse-radish roots, rhubarb roots.

DECEMBER

Plant in Garden.—Asparagus roots, horse-radish roots, rhubarb roots.

Transplant to Garden.—Cabbage for earliest spring use, strawberry plants.



STATEMENT
Your account with the soil.

59	lbs.	Nitrogen
8	"	Phos. Acid
78	"	Potash
145	"	Total

Removed with each 1,000 lbs. of Tobacco and Stalks in 1923.

Are You Giving Your Soil a Chance?

With every 1,000 pounds of Tobacco sold from your farm, there is removed plant food equivalent to 850 pounds of high-grade fertilizer.

The soil must furnish every ounce of plant food used by the crop.

The question is, "Can your soil supply enough plant food to make a full crop?"

With a normal season and good cultivation, your crop of Tobacco is limited in yield and in quality chiefly by the lack of available plant food.

Further, the Nitrogen, Phosphoric Acid and Potash must be available in certain proportions if your acre is to produce 1,000 pounds of high-grade leaf. In what condition is your soil now?

Are you planning to replace the plant food with enough of the right kind of fertilizer to make a full crop?

Every 200-lb. bag of V-C High Analysis Fertilizer used per acre on Tobacco will produce under good cultural conditions, an increase of 100 pounds of prime quality leaf.

Our V-C Fertilizers represent the best that the science of chemistry and agricultural practice know about the subject of plant food. Our policy is not only to sell fertilizers that will give good results, but also through our Agricultural Service Bureau, furnish any information that will lead to its profitable use.

Ask your dealer or write

Agricultural Service Bureau
VIRGINIA-CAROLINA CHEMICAL CO.
HOME OFFICE: RICHMOND, VA.
Dealers and Warehouses at All Points

The Vet Says

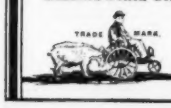
"I know from observing hundreds of cases that the Lankford Cotton Collar not only prevents galled, sore, bleeding and bruised shoulders on horses and mules but actually heals such sores, while the animal is working in the field".

Give your horses and mules these well cushioned comfortable work collars that roll back and forth without irritating friction as the load goes on and off.

The Lankford NOMANE HORSE COLLAR

is made of strong, army duck cloth sewed with waxed thread, reinforced at points of wear with leather and stuffed with oily, curly lint and fibre of cotton. They are giving satisfaction to thousands. They're strong, sturdy, long wearing and economical. Price about one-third that of leather collar.

You will find the trade-mark below on all genuine Lankford Cotton Collars.



If your dealer does not carry genuine Lankford Cotton Collars write us.

COUCH BROS. MFG. COMPANY
Atlanta Georgia

ORIGINATOR

"OVER THE TOP" COTTON!

Jackson's OVER THE TOP COTTON is registered with the Georgia Breeders' Association, recommended by the State College of Agriculture and State Bureau of Entomology as one of the best and earliest varieties to grow under weevil conditions and is the only extra early cotton to have 1 1-16 inch staple. By constant and scientific selection this cotton has been brought to its present high standard. These seed are culled, graded and put up in new 100-pound bags. Prices: per bushel $3.00; per bag $10.00; 50 bushel lots $2.75; 100 bushel lots $2.50.

J. HOPE JACKSON, Hogansville, Ga.

JELL-O

America's most famous dessert

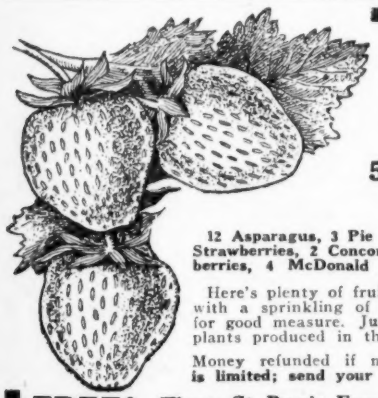
—for sociables

Jell-O makes a most attractive dessert for sociables. It is such a pretty dish to serve, it makes the occasion festive at once. You can prepare Jell-O, even in large quantities, as easily as making a cup of tea. And it is always a saving dish, probably the most economical dessert you can have, either at home or at entertainments. Ask for a Jell-O Recipe Book.

SNOW PUDDING

Dissolve a package of Lemon Jell-O in a pint of boiling water. When cold and still liquid, whip with an egg beater to consistency of whipped cream. Let stand till firm, then pile it into sherbet glasses and serve with custard.

THE GENESEE PURE FOOD COMPANY
LE ROY NEW YORK



A Home Fruit Garden

50 CHOICE VINES & PLANTS **$1** Postage Paid

12 Asparagus, 3 Pie Plants, 25 Michel Early Strawberries, 2 Concord Grape Vines, 4 Dewberries, 4 McDonald Blackberries.

Here's plenty of fruit for home use and some to spare, with a sprinkling of asparagus and rhubarb (pie plant) for good measure. Just think of it! 50 choice vines and plants produced in the heart of the Ozarks for $1.00.

Money refunded if not satisfactory. **Supply is limited; send your order NOW.**

FREE! *Three St. Regis Everbearing Raspberry Plants, if your order is placed at once.*

Also Write for Our Free Catalog!

Arkansas Seed & Nursery Co.

Dept. B-10 FAYETTEVILLE, ARK.

Pin a Dollar or Your Personal Check to Coupon.

Arkansas Seed & Nursery Co., Dept. B-10 Fayetteville, Ark.

Send the 50 Choice Vines and Plants, and Free Raspberry Plants

Name ----------

Post Office ---------- R.F.D. State ----------

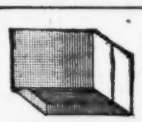
Houses Look Better

and are worth more with shade trees in the front yard, roses and vines over the porch, flowers and fruits in the garden. The cost is little—how little is shown in

Southern Planting Facts

our new booklet about shade trees, evergreens, shrubs, and fruits for southern homes. Describes, pictures, and prices only the best. Write today for a copy.

Glen St. Mary Nurseries Co.
Glen St. Mary, Florida
No agents; not connected with other nurseries
13-24



Get Low Prices on Berry Boxes and Baskets

Write for our **Free Catalog!** Shows you how you can save money by buying direct from *the largest Berry Box and Basket Factory in the Country.*

New Albany Box & Basket Co., Box 108 New Albany, Ind.

COTTON Hawkins Extra and Early Pedigreed Big Boll Prolific. Address B. W. HAWKINS, Dennis, Ga., for descriptive circular and prices of seed. Worth hundreds of dollars to you. Quick maturity. Bred to beat boll weevil.

Business Hints for Farmers

Brief Business Laws

THE maker of a note that is lost or stolen is not released from payment if the amount and consideration can be proved.

Notes bear interest only when so stated.

Demand notes are payable on presentation, without grace, and bear legal interest after a demand has been made, if not so written. An endorser on a demand note is holden only for a limited time, variable in different States.

A negotiable note must be made payable either to bearer, or be properly endorsed by the person to whose order it is made. If the endorser wishes to avoid responsibility, he can endorse "without recourse."

A joint note is one signed by two or more persons, who can each become liable for the whole amount.

No grace is allowed in the majority of States on time notes after the time for payment expires. If not paid when due, the endorser, if any, should be legally notified to be holden.

Notes falling due on Sunday, or on a legal holiday, must be paid the day following as a rule.

A note made on a Sunday is void, also one dated ahead of its issue. It may be dated back at pleasure.

Contracts made on Sunday cannot be enforced.

Altering a note in any manner, by the holder, makes it void.

A note by a minor is void in some States, and in others it is voidable on judicial decision.

A contract made with a minor, or a lunatic, except for necessities of life, is void.

Notes obtained by fraud, or given by intoxicated persons, cannot be collected. It is a fraud to conceal a fraud. Signatures made with a lead pencil are good in law. The acts of one partner bind the rest.

Principals are responsible for the acts of their agents.

Each individual in a partnership is responsible for the whole amount of the debts of the firm, except in cases of a special partnership. The word "limited," in connection with a firm name, indicates that a limitation of responsibility for each member is fixed.

Ignorance of the law excuses no one. A receipt for money is not legally conclusive.

An agreement without consideration of value is void. "Value received" is usually written in a note, and should be, but it is not necessary. If not written, it is presumed by the law or may be supplied by proof.

No consideration is sufficient in law if it be illegal in its nature.

An endorsee has a right of action against all whose names were on the bill when he received it.

If the letter containing the protest of nonpayment be put into the post office, any miscarriage does not affect the party giving notice.

Notices of protest may be sent either to the place of business or residence of the party notified.

Checks or drafts should be presented, without unreasonable delay, during business hours, but in this country, except in the case of banks, the time extends through the day and evening.

Written contracts concerning land must be under seal.

An employer is responsible for the negligent acts of his agent while the agent is acting in the direct line and scope of his employment.

Failure of tenant to pay rent as agreed in the lease will operate as cancellation of the lease. The landlord has a lien on all the crops of the tenant raised on the premises.

All persons of legal age and sound mind may make a will. A will must be in writing, and requires the signature of the maker in the presence of two witnesses who sign in the presence of the maker and of each other.

No set form in wills is necessary. Write the will in simple language so there can be no mistake as to its meaning. The rule in all courts is to find out the intention of the maker of the will.

When money is borrowed from a bank and livestock or other personal property is mortgaged as security for the loan such property must not be moved from the premises. If any of the mortgaged livestock die or the property destroyed by fire or otherwise the mortgagee should be notified at once.

Your Farm Lease

WAS its full meaning understood before it was signed? Is it so written that its meaning will be clear at any later time?

Is it fair to both parties?

Does it give the tenant a reasonable opportunity to make a comfortable living and to get ahead?

Does it require proper and conservative care of the premises leased?

Are all desired reservations to the lease made?

Are the things stated which each party is to do and to contribute?

Does it make clear the rights and privileges of each party?

Does it define the relationship between landlord and tenant and provide for the settlement of differences of opinion?

Does it contain a statement of the procedure to be followed when the relationship of landlord and tenant is to be terminated?

Does it contain the following essentials to a legally complete lease?

1. The date it was made.
2. The names and the final signatures of the contracting parties.
3. The period for which the lease is to run.
4. A description of the property leased.
5. An agreement in respect to the amount of rent to be paid and the time when and the place where it is to be paid.—U. S. D. A.

Rules for Corn Clubs, Canning Clubs, Pig Clubs, Etc.

HERE are some important facts about club work which ought to be familiar to all Southern boys and girls, parents and teachers:

Ages.—Any boy or girl who was **between 10 and 18** years of age on January 1, 1924, may join any club this year.

Kinds of Clubs.—There are various kinds of clubs, but the most popular are, **Pig, Poultry, Corn, Peanut, Potato,** and **Cotton,** these being for both boys and girls; and **Canning and Home Economics** for girls only.

Requirements for Admission.—In order to join a Corn, Peanut, Cotton, or Sweet Potato club, the boy or girl must agree to cultivate an acre of the crop indicated and to make a report of the work done. In the Irish Potato Club and in Canning Club only **one-eighth of an acre** need be cultivated.

In the Pig Club the boy or girl must have either (1) a grade hog for fattening, (2) a purebred for breeding purposes, or (3) a sow for the sow and litter project.

In the Poultry Club the boy or girl must agree to hatch one or more **sittings of purebred eggs.**

Whom to Consult.—Your teacher should know about these clubs. If she doesn't, consult your county agent, or write your **state** agricultural college or state club agent.

Local Clubs.—Any boy or girl meeting the requirements may enroll as a club member, even if not a single other neighborhood boy or girl is interested. In order to get the **full** benefits of club work, however, there should be **a local club of five or more members.** Expert supervision and advice and many helpful demonstrations can be given to local clubs which are not available to individual members working alone.

Each boy or girl wishing to join any **particular** kind of a club, therefore, is asked to try to get at least four other neighborhood boys and girls to join the same club and so have a local organization and get increased benefits for all concerned.

Officers of Local Clubs.—Each local club of five or more members (there should be **just** as many as possible) should have an **adult** "local leader"—a resident teacher or **some** other competent person, either man or **woman.** Each club also elects a **president,** vice-president, and secretary from its **own** membership.

County Encampments. — In nearly **every** county this year plans are making for **holding** a two-day or three-day "county encampment" of club members, with lessons, addresses, demonstrations, health talks, etc.

Formulas for Waterproofing Cotton Duck

THE U. S. Department of Agriculture has found that the following formulas are very satisfactory for increasing the serviceability of cotton duck. They are designed solely for use in waterproofing and mildew-proofing treatments.

Formula 1

Amorphous mineral wax or crude petrolatum	7½ lbs.
Yellow beeswax	1 lbs.
Refined Bermudez Lake asphalt	1½ lbs.

Solvent: 3 gallons gasoline and 2 gallons kerosene.

Formula 2

Petroleum asphalt (medium hard) or Bermudez asphalt	6 lbs.
Neutral or extracted wool grease	2½ lbs.
Lead oleate, technical	1½ lbs.

Solvent: 3 gallons gasoline and 2 gallons kerosene.

Formula 3

Amorphous mineral wax or crude petrolatum	8½ lbs.
Yellow beeswax	1½ lbs

Solvent: 3 gallons gasoline and 2 gallons kerosene.

Formula 4

Amorphous mineral wax or crude petrolatum	6½ lbs.
Yellow beeswax	1½ lbs.
Lead Oleate, technical	2 lbs.

Solvent: 3 gallons gasoline and 2 gallons kerosene.

Applications of mixtures made by formulas 1 and 2 give the canvas a dark brownish color, while those made according to formulas 3 and 4 give it a light buff to khaki color. The first two are preferable for all purposes where a dark color is not objectionable.

Mixing Materials.—Place solid materials in kettle or can, and melt slowly at low temperature as possible, stirring constantly. Remove mixture safe distance from fire, pour slowly, with constant stirring, into a solvent (by volume 3 parts gasoline and 2 parts kerosene) and use 5 gallons solvent to 10 pounds mixture. This is best done outdoors. In making mixtures by formulas 1 and 2, if asphalt does not mix well with solution, allow to stand a day or so, with occasional stirring, before using it. If material settles to bottom or thickens, warm before applying to canvas. This must be done in open air by placing open container in tub or can of hot water. Be sure container is open, and **never place it over or near flame.**

Application.—The mixture must be thoroughly stirred before and during application, in order to keep the undissolved material in suspension. These preparations may be applid to the canvas by means of a paint brush or by spraying.

The Very Latest Style— PLEATED Dress of KING "TUT" Satin & Serge

Biggest Bargain Ever Offered

ONLY $3.98 C.O.D.

Almost unbelievable to get such a dress at our special low price, but see for yourself without any risk and entirely on approval. Every cent back if you are not entirely satisfied. The lowest price ever asked for a dress of such style and such high quality materials and workmanship. Everywhere fashionable women will wear this original Paris model King "Tut" Egyptian Silk finish cotton Satin in many colored designs, a material all the rage this season, and long wearing, double warp, navy blue serge. The most beautiful dress of the season. Waist, vestee, wide crush, draped Nelkon effect girdle with loose hanging panel are of Silky finish cotton Satin, in King "Tut" design, a specially strong and stylish material. Newest style, surplice collar, cuffs and full cut skirt of navy blue serge. Skirt is with pleats, which are very stylish this season. A bargain you cannot afford to miss.

Newest Girdle, Panel and Buckles

Color: Navy Blue

Sizes 16,18 & 18for Misses: 32,34, 36,38,40, 42, 44 & 46 bust for women.

SEND NO MONEY

But rush your order now! Give us NAME, ADDRESS and SIZE. We will ship the dress by parcel post. Pay the mailman $3.98 and postage when the package arrives. Then examine the dress in your own home. If not satisfied in every way, return the dress to us, and we will refund every cent of your money.

FRED'K M. DUNHAM & CO. Dept. 1626 Chicago

Money Back If Not Satisfied

Save half on Fence

Buy "Galvannealed" Square Deal Fence. We guarantee it to last 2 to 3 times longer than ordinary galvanized wire in any standard test. Its triple thick zinc coating does not flake or peel off. Rust and corrosion can not get in to destroy the steel. It should last 2 to 3 times longer than the fence you now own, therefore, cost ½ to ⅓ as much.

Square Deal Fence

is trim looking, long lasting—economical. Full gauge wires. Stiff, picket-like stay wires. Well crimped line wires. Small, compact knot guaranteed not to slip.

FREE Copy of Ropp's New Calculator (answers 75,000 farm problems) to land owners who write for Square Deal catalog that tells all about "Galvannealed" the new Triple-Life Wire.

KEYSTONE STEEL & WIRE CO.
5330 Industrial St., Peoria, Ill.

KITSELMAN FENCE

"We Saved 30 Per Cent," says T. N. Spencer, Cabarrus County Fair Assn., Concord N. C.

"I saved at least $25," declares Homer Sharp, R 3, Cloverdale, Alabama.

You, too, can save money on Fence, Gates, Posts and Barbed Wire by buying direct from our great mills. **Lowest Factory Prices.** Prompt shipments. Every article guaranteed satisfactory.

Better Fence---Greater Savings

New Fences have been added to our big line; many present styles have been made heavier. More than 100 styles and heights from which to choose. Every rod made to give you longest service at lowest cost.

Direct from Factory to Farm We Pay the Freight

Write now—today—for our Free 100-page catalog filled with real money-saving values in Farm, Poultry and Lawn Fence, Gates, Steel Posts and Barbed Wire.

KITSELMAN BROS., Dept. 84 MUNCIE, INDIANA
America's Oldest Fence Manufacturers

POWER MILKER $142

Complete READY TO MILK WHEN YOU GET IT

Send for sensational offer! Milk 18 to 40 cows an hour—easy. Costs nothing to install. Easy to clean. Milks the human way—easy on the cows. 30 Days Trial—10 Year Guarantee—Cash or Easy Terms—2 year to pay. Write for FREE BOOK, "How to Judge Milkers". Get yours now!

ADD $5 FROM PITTSBURGH

Ottawa Mfg. Co. Box 2807 White Street, Ottawa, Kansas Magee Bldg., Pittsburgh, Pa.

Domestic Postage

First-class matter (letters, etc.) two cents per ounce, except drop letters for delivery through general delivery or box at offices not having free delivery, which are 1 cent per ounce.

Second-class, (newspapers and periodicals), 1 cent for 4 ounces.

Third-class, (circulars) printed matter under 4 pounds, 1 cent for 2 ounces.

Fourth-class (merchandise) 1 cent an ounce up to 4 ounces; in excess of 4 ounces in weight, the rate shall be by the pound (see parcel post).

Registration fee (additional to postage), 10 cents and 20 cents according to value.

Special delivery (additional to regular postage) 10 cents.

Money order ($1 to $100) 3 cents to 30 cents.

Post cards.—Government form, whether printed or written, 1 cent. "Post cards" or "Private Mailing Cards," larger than 3 9-16 inches by 5 9 1-6 inches, printed, 1 cent, written, 2 cents.

Parcel Post Rates

Zone	Distance	1st lb.	Additional Pounds	Weight Limit
1	Local	$0.05	$0.01 @ 2 lbs.	70 lbs.
	Within 50 Mi.	.05	.01 @ 1 lb.	70 lbs.
2	50- 150 Mi...	.05	.01 @ 1 lb.	70 lbs.
3	150- 300 Mi...	.06	.02 @ 1 lb.	70 lbs.
4	300- 600 Mi...	.07	.04 @ 1 lb.	50 lbs.
5	600-1,000 Mi...	.08	.06 @ 1 lb.	50 lbs.
6	1,000-1,400 Mi...	.09	.08 @ 1 lb.	50 lbs.
7	1,400-1,800 Mi...	.11	.10 @ 1 lb.	50 lbs.
8	1,800 and over.	.12	.12 @ 1 lb.	50 lbs.

Restrictions—Size limit, 84 inches in length and girth combined.

Four ounces or under, one cent per ounce. Over four ounces considered one pound. Fractional pounds considered pounds.

Special conditions—Farm products such as butter, eggs, fruits, day old chicks and honey bees, are classed as parcel post mail.

Parcel post excludes matter of a character perishable within a period reasonably required to transport and deliver, and parcels of form and kind likely to injure postal employees or equipment or other mail matter.

Insurance—Packages may be insured at the following rates:

3 cents for value up to $ 5.00.
5 cents for value up to 25.00.
10 cents for value up to 50.00.
25 cents for value up to 100.00.

C. O. D.—Sender of parcel on which postage is fully prepaid may have price of article and charges thereon collected on payment of 10 cents additional if amount is not over $50 and for a fee of 25 cents when the amount to be collected does not exceed $100 A. M. V.

Money Order Rates

Sums not exceeding $2.50..... 3c
Over $ 2.50 and not exceeding $ 5.00 ..... 5c
Over $ 5.00 and not exceeding $10.00 ..... 8c
Over $10.00 and not exceeding $20.00 ..... 10c
Over $20.00 and not exceeding $30.00 ..... 12c
Over $30.00 and not exceeding $40.00 ..... 15c
Over $40.00 and not exceeding $50.00 ..... 18c
Over $50.00 and not exceeding $60.00 ..... 20c
Over $60.00 and not exceeding $75.00 ..... 25c
Over $75.00 and not exceeding $100.00 ..... 30c

Income Tax in Nutshell

Who?—Single persons who had net income of $1,000 or more or gross income of $5,000 or more, and married couples who had net income of $2,000 or more or gross income of $5,000 or more must file returns.

When?—The filing period is from January 1 to March 15, 1924.

Where?—Collector of internal revenue for the district in which the person lives or has his principal place of business.

How?—Instructions on Form 1040A and Form 1040; also the law and regulations.

What?—Four per cent normal tax on the first $4,000 of net income in excess of the personal exemption and credits for dependents. Eight per cent normal tax on balance of net income. Surtax from 1 per cent to 50 per cent on net incomes over $6,000 for the year 1923.

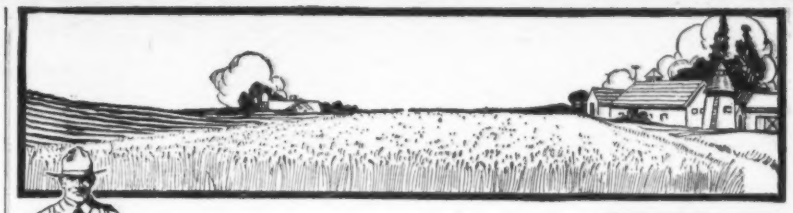
Farmers' Mutual Fire Insurance Companies: How to Organize

FARMERS interested in forming farmers' mutual fire insurance companies can get information by addressing the state insurance commissioner at their state capital; or information may be had from the state commissioner of agriculture or experiment station.

An invaluable publication for all interested is "The Organization and Management of a Farmers' Mutual Fire Insurance Company" sent for 5 cents in stamps on application to the Division of Markets, United States Department of Agriculture, Washington, D. C. Nobody should attempt to form or run a company without getting this bulletin, which gives the reader the benefit of the experience of many such companies in various sections of the United States.

Wire Required for Fences

1 mile long (single wire)—320 lbs.
1 rod in length—1 lb.
100 rods—100 lbs.
1 foot—6 1-16 lbs.



Top-Dressing Talk No. 6

Two men—

and how they increased the yield of oats

W. H. Lasseter of Vienna, Ga., top-dressed a portion of his oats. He used *Arcadian Sulphate of Ammonia* at the rate of 100 pounds per acre. His results from adjoining plots were as follows:

Plot top-dressed.....28 bushels per acre
Plot not top-dressed.....14 bushels per acre
Increase due to Arcadian..... 14 bushels per acre

Mr. J. L. Doolittle of Jefferson, Ga., in a similar test obtained an increase of 22½ bu. per acre from 150 pounds of *Arcadian*. Many other growers have obtained even larger increases.

Top-dress your oats, wheat, corn, and cotton with Arcadian—100 to 200 pounds per acre. Arcadian contains one-third more nitrogen than any other fertilizer. The nitrogen is all soluble, quickly available and non-leaching.

Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past.

Arcadian is the kiln-dried and screened grade, made fine and dry for top-dressing purposes. Ammonia 25¼% guaranteed.

Let us send you—free of course—interesting and valuable bulletins on top-dressing with Arcadian.

The Barrett Company
Agricultural Department
Atlanta, Georgia
New York, N. Y. Berkeley, Cal. Medina, Ohio

19¢ A Rod and Up

Peerless FENCE

Now Sold Direct from Factory

Our New Plan of selling the famous Peerless Fence direct from three big factories is "glad news" for farmers. It means the cutting out of all "in-between" profits and a slash in prices that will save farmers thousands and thousands of dollars. Now you can get this well-known, high-standard fence, also gates, steel posts, barb wire, smooth wire, paints and roofings, at the

Lowest Prices Ever Quoted

on Peerless Fence, Gates, Roofing and Paints. Don't fail to send at once for our New, Direct-from-Factory Peerless Catalog—over 100 pages of sensational bargains—prices that will be a glad surprise to you. For example:

Peerless Farm Fence, per rod, 19 cts and up

Steel Farm Gates, each	$3.65	Lawn Fence, per ft.	7½c
Steel Posts, each	24½c	Paint, per gallon	$1.28
Barb Wire, 80 rod spool	$2.70	Roofing, 100 sq. feet, roll	$1.25

And so on, throughout this great money saving book, our prices will be a revelation to you. The same, old time, high quality—the prices cut to rock bottom through our change in selling direct from factory to you.

FREE, Send For It TODAY

Just drop us a post card for this big money-saving book. See for yourself the money you can save. Everything you buy is backed by a "money-back" guarantee. You take no risk. Write for catalog today.

PEERLESS WIRE & FENCE CO.
Dept. 3733 Cleveland, Ohio
Factories at Cleveland, Ohio, Adrian, Mich. and Memphis, Tenn.

Why Peerless Fence Satisfies

PEERLESS WIRE & FENCE CO. Cleveland, O.

Having a general acquaintance with the desirability of Peerless Fence and the well managed company, I can highly recommend it as the best all-purpose fence in this county. I know of fence still in use which has been up for 20 years.

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Grow Better Farm Products

Score Cards or Standards for Crops and Livestock

EVERY prospective exhibitor of crops and livestock should be familiar with the standards which are usually used in judging and the bases on which awards are made at the fair. A careful study of the score cards will prove helpful to the person collecting exhibits or preparing livestock for the show ring.

The following standards have been worked out and approved by the Mississippi Agricultural and Mechanical College and its corps of poultry and livestock specialists and agricultural workers:

Corn

	Points
Prolificacy	30
Trueness of ear to variety type	20
Market conditions	20
Character and uniformity of ears	15
Character and uniformity of kernels	15

1. Prolificacy shall be interpreted as the total amount of shelled corn per stalk.
2. Trueness of ears to variety type shall include size of ears, color of grain and cob, and shape of ears.
3. Market condition shall apply to the maturity of the ears, their sappiness, adherence of chaff to tip cap, adherence of tip cap to cob, plumpness of tips to kernels, soundness and lustre of kernels.
4. In reference to the character and uniformity of the ears of the exhibit, consideration shall be given to length and diameter of ears, shape, filling out of butts and tips, straightness and arrangement of grain, rows, purity of color of kernels, and space between grain rows.

Hay

	Points
Maturity.—Cut at proper stage of maturity	30
Condition.—In good merchantable order, free from dust, mold, excessive moisture or damage	25
Color.—Bright or natural color, free from sunburn or moisture stains	20
Aroma.—Characteristic of the hay names, sweet and free from mustiness	15
Texture.—Not too coarse	10

Hay entered for these premiums must be neatly baled, cut at the proper state to make good hay, well cured, free from dust or mustiness, and containing not more than 15 per cent of other grasses or hay than the one under which it is entered, except in "Mixed Grasses."

Sweet Potatoes

	Points
Uniformity	35
Smoothness	20
Trueness to type	20
Freedom from blemishes	15
Size (marketable size)	10
Total	100

Butter

	Points
Flavor	45
Body	25
Color	15
Salt	10
Package—Style and neatness	5

Butter should have a clean, mild, creamy flavor, with a pronounced but pleasant aroma. The body should be close, solid and waxy, and free from buttermilk and undissolved salt. The color should be uniform throughout the package, and with regard to individual packages of a lot and of a natural yellow. The package should be neat, clean, and attractive.

Grazing Hogs

	Perfect Score Points
General appearance, 30 points:	
Weight—score according to age	4
Form—deep, broad, medium length smooth, compact, symmetrical, standing squarely on medium short legs	10
Quality—hair smooth and fine; bone medium size;, clean, strong; general appearance smooth and refined	6
Flesh covering—finished, deep, even, mellow, free from bumps and wrinkles	10
Head and neck, 8 points:	
Snout—medium length, not coarse	1
Eyes—not sunken, clear, not obscured by wrinkles	1
Face—short, cheeks full	1
Ears—fine, medium size, attached neatly	1
Jowl—full, firm, neat	2
Neck—thick, short, smooth to shoulder	2
Forequarters, 12 points:	
Shoulders—broad, deep, smooth, compact on top	8
Breast—full, smooth, neat	2
Legs—straight, short, strong; bone, clean, hard; pasterns short, strong, upright; feet medium sized	2
Body, 33 points:	
Chest—deep, wide, large girth	4
Sides—deep, full, smooth, medium length	8
Back—broad, strongly arched, thickly and evenly covered	9
—Loin—wide, thick, strong	9
Belly—straight, smooth, firm	3
Hindquarters, 17 points:	
Hips—wide apart, smooth	3
Rump—long, level, wide, evenly fleshed	3
Ham—heavily fleshed, full, firm, deep, wide	9
Legs—straight, short, strong; bone clean, hard; pasterns short, strong, upright; feet medium sized	2
Total	100

Dairy Bulls

	Perfect Score
General form, 16 points:	
Masculinity	11
Size for the breed—Jersey, 1,200 lbs.; Guernsey or Ayrshire, 1,500 lbs.; Holstein, 1,600 lbs.	5
Quality, 10 points:	
Hide—thin, mellow, pliable, loose	3
Hair—fine, soft	2
Secretions—abundant, yellowish	1
Flesh—well muscled, free from bunchiness	1
Veins—large, prominent	1
Bone—strong and clean	2
Head, 10 points:	
Forehead — very broad between the eyes, slightly dished	2
Face—medium in length	1
Nostrils—large	1
Muzzle—broad	2
Eyes—prominent, large, clear, bright	3
Horns—well proportioned	1
Neck, 5 points:	
Medium in length, very large, prominent crest; neatly joined; throat free from loose skin	5
Forequarters, 16 points:	
Shoulders—withers moderately sharp, well muscled	5
Chest—broad, deep, large heart girth, crops full, brisket moderate in size.	10
Forelegs—straight, squarely placed, wide apart, strong bone	1
Body capacity, 19 points:	
Back—straight, strong, vertebrae prominent	7
Ribs—flat, well-sprung, wide apart	2
Abdomen (barrel)—long, deep, broad, well held up; loin broad, strong, level; flanks low	10
Hindquarters, 16 points:	
Hips—wide and prominent	3
Rump—long, wide, level	6
Pin bones—widely spaced, on level with hips	4
Thighs—incurving	1
Tail—tapering, fine bone, neatly set on; long fine switch	1
Hind legs—squarely placed, not sickle hocked; bone clean and strong	1
Rudimentaries, 6 points:	
Teats—squarely and evenly placed, large	3
Mammary veins—large, tortuous	2
Milk wells—large	1
Scrotum, 2 points:	
Well developed—strongly held up	2

Dairy Cows

	Perfect Score
General form, 9 points:	
Wedge shape—when viewed from side, top, and front	6
Size for the breed—Jersey, 800 lbs.; Guernsey, 1,050 lbs.; Ayrshire, 1,000 lbs.; Holstein, 1,200 lbs.	3
Quality, 7 points	
Hide—thin, mellow, pliable and loose	2
Hair—fine, soft	1
Secretions—abundant, yellowish	1
Flesh—muscular, free from bunchiness	1
Veins—large and prominent	1
Bone—fine and clean	1
Head, 6 points:	
Forehead—broad between the eyes and dished according to breed	1.0
Face—medium in length, clean cut in outline, dished below eyes	.5
Nostrils—large	1.0
Muzzle—broad, but not coarse	1.0
Jaws—wide at base, strong	.5
Ears—medium sized, thin, hair fine, blood vessels showing, secretion abundant	.5
Eyes—full, prominent, clear, bright	1.0
Horns—small at base, incurving, attached close together at poll	.5
Neck, 2 points:—Moderately thin, of good length, nearly free from loose skin, neatly joined, throat clean	2
Forequarters, 11 points:	
Shoulders—withers sharp, shoulder blades lean	2
Chest—broad and deep, well-sprung forerib, large heart girth, moderately full crops, brisket light	8
Forelegs—straight, fine bone, strong.	1
Body—capacity, 18 points:	
Back—straight, strong, vertebrae prominent	5
Ribs—long, flat, well-sprung, wide apart	3
Abdomen (barrel)—long, deep, broad, well held up; loin broad, strong, and level; flanks low	10
Hindquarters, 12 points:	
Hips—wide apart, prominent	3
Rump—long, wide, level	3
Pin bones—widely spaced, on level with hips	3
Thighs—incurving; escutcheon broad, extending well up on pin bones	1
Tail—tapering, fine boned, long and neatly set on; switch long	1
Hind legs—squarely placed, not sickle-hocked, bone fine	1
Mammary system, 35 points:	
Udder—large; quarters even and not cut up between; extending well up behind and well forward in front; not fleshy; soft and pliable	20
Teats—squarely placed, even in size, of convenient size for milking, free from lumps, not leaky or hard to milk	8
Mammary veins and wells—veins long, branching, tortuous, entering body well forward; wells large	7
Total	100

Beef Cattle

	Standard Score
General appearance, 42 points:	
Weight—1 year old, 800 lbs.; 2 years old, 1,300 lbs.; 3 years old, 1,500 lbs.; deduct 1 point for each deficiency of 100 lbs.	10
Conformation—compact and smooth of form, having good width and depth;	

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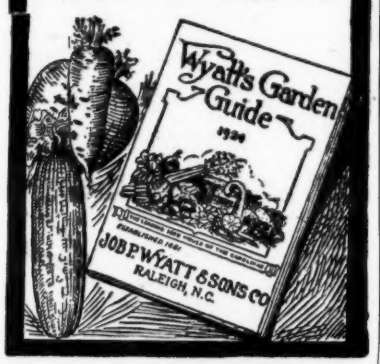

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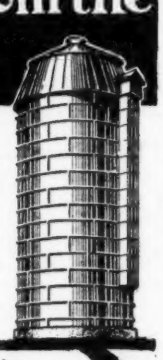

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Advertise and buy advertised products

low set, and carrying evenness and straightness of lines	10
Quality—flesh firm, hair fine, skin pliable and mellow to the touch, bone dense; smooth, even distribution of flesh	10
Condition — indicated by deep, even covering of flesh, especially in regions of valuable cuts; thick of flank and full purse; a general plumpness and fullness all over entire animal	12
Muzzle—muzzle broad, mouth large, jaws wide, nostrils large	1
Eyes—large, clear, prominent, and placid	1
Face—short, quiet, expression	1
Forehead—broad and full	1
Ears—medium size, fine texture, well set	1
Horn—fine texture, oval, medium sized	1
Neck—short and thick; throat clean	1
Forequarters, 8 points	
Shoulder vein—full	2
Shoulder—smooth, well covered with flesh, compact on top	2
Brisket—advanced; breast wide; free from excessive flesh	1
Dewlap—skin not too loose and drooping	1
Legs—straight, short, arm full, shank showing quality	2
Body, 32 points:	
Chest—full, deep, wide, girth large, crop full	4
Ribs—long, arched and thickly fleshed	8
Back—broad, straight, carried strong, smooth and evenly fleshed	10
Loin—broad and thick	8
Flank—full, thick, and even with underline	2
Hindquarters, 11 points:	
Hips—smoothly covered; distance apart in proportion with other parts	2
Rump—long, wide, even; tailhead smooth, not patchy	2
Pin bones—Not prominent; far apart	1
Thighs—full, deep, wide	2
Legs—straight, short; shape fine, smooth	2
Twist—deep and plump	2
Total	100

Preventing Diseases of Hogs

DISEASE Prevention is better than cure. Use the Government Tonic Compound.

Wood Charcoal	1 pound
Sulphur	1 pound
Salt	2 pounds
Baking soda	2 pounds
Sodium hyposulphate	2 pounds
Sodium sulphate	1 pound
Antimony sulphid	1 pound

Mix and give large tablespoonful for each 200 pounds of hogs not oftener than once per day.

Keep all premises clean. Make free use of disinfectants. Pastures are healthier than dry lots. Provide sanitary cement hog wallows. Hogs require protection from heat and cold. Sunshine is a good germicide. Use crude oil for lice.

Hog Cholera.—Over 90 per cent of hog losses are due to cholera. Prevent hog cholera from reaching your herd. Quarantine all sick hogs immediately. Keep dogs, pigeons, buzzards, etc., away from lots. Keep hogs out of barn lots and off of highways. Supply well water to hogs and not stream water. The use of serum and virus insures against losses from cholera.

If you have hog cholera, burn all litter and rubbish. Fill up mud holes and wallows Burn all dead animals. Change location of lots.

For Control of Hog Cholera

1. Isolate sick hogs.
2. Burn or bury deeply carcass of every animal dying from any cause.
3. Have local veterinarian vaccinate herd immediately.
4. Clean up and disinfect premises and hog lots.

Building Materials for a Silo

THE following table shows the quantity of cement, rocks, and reinforcing required for the foundation and main wall of silos of different dimensions. When the sand and rock are obtained together in gravel form, the quantity will slightly exceed the number of cubic yards of rock designated. Theoretically the sand should just fill the voids between the rock particles without increasing the bulk, but it is well to add one-sixth to the cubic yards of rock when sand and gravel are obtained together.

BUILDING MATERIAL REQUIRED

Dimensions of silo feet	Sacks Cement	Cu. Yds. Rock	Cu. Yds. Sand	Rods Reinforcing
10x25	70	13	8	19
10x28	75	14	9	20.4
12x28	90	16	10	25
12x32	100	18	11	26.5
14x32	136	26	16	32
14x34	145	27	17	34
15x34	156	29	18	40
16x34	166	32	20	43
16x40	195	36	23	45.5
18x36	200	37	23	58
18x40	217	41	25	65
20x40	240	45	28	72

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Warmth—
like mother used to use

MOTHER HEN, of course. In fact better than the warmth of the broody hen because it is even more reliable and more uniform. Just the right temperature day and night. The one absolute essential for healthy chicks. Think what it will save you in time, money and worry, for a healthy chick makes a healthy bird.

It pays to spend a few cents more for an oil that is specially refined for long, steady, even burning. Every drop of oil you use is filtered by the wick. That's what clogs and chars wicks and that's why you should use an oil so pure that it doesn't need any more filtering.

"Standard" Incubator Oil has been burned for four weeks straight without cleaning wicks, but of course it is better to clean them when you have the chance. It's the kind of oil that is well worth using in reading lamps and wherever a bright, steady, reliable flame is needed.

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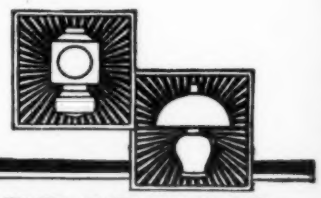

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I wish to buy approximately the following quantities of WELL-SEASONED pine lumber which has been cut and piled on sticks for at least six months:

Pieces	Size	Pieces	Size
200	2x12 in. x 20 ft.	500	2x4 in mixed: 12-14-16 ft.
100	2x12 in. x 16 ft.	100	2x6 in. x 24 ft.
100	2x12 in. x 14 ft.	50	2x6 in. x 16 ft.

Also 15,000 ft. T. & G. roofer

If you can deliver all or a large part of this order, quote lowest spot cash prices f. o. b. cars, stating how long lumber has been cut. Advise whether second growth or original growth.

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ELY J. PERRY.....Kinston
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WILLIAMS & WILLIAMS.....Sanford
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Send for Catalog **Pomona, N.C.**

Tips for Orchardists

How Cleft Grafting Is Done

THE cleft style of graft is particularly adapted to large trees when for any reason it becomes necessary to change the variety. Branches too large to be worked by other methods can be cleft grafted.

To make a cleft graft select a branch 1 or 1½ inches in diameter and sever it with a saw. Care should be taken that the bark be not loosened from any portion of the stub. Split the exposed end with a broad thin chisel or grafting tool. Then with a wedge or the wedge-shaped prong

CLEFT GRAFTING
(a)—Scion. (b)—Scions inserted in cleft.

at the end of the grafting tool spread the cleft so that the scion (a) may be inserted (b). Do this work in winter or just before growth starts in spring. It is used principally with apples when it is desired to change from one variety to another. Cover with grafting wax as soon as the work is completed; that is the cut and split portions.

What Temperature Injures Fruit

WEATHER Bureau Bulletin No. 542 gives the following temperatures as dangerous to fruit trees at different stages of the bud's development, but of course the wind velocity and the moisture content of the air and plant have considerable influence on the effect of the freeze on fruit trees.

"When peach buds are opened, 26 degrees; when petals are beginning to fall, 28 degrees; when petals are all off, 30 degrees, and just after the fruit is formed, 32 degrees.

"Apples: When the petals are beginning to show, 22 degrees; when in full blossom, 29 degrees, and when petals are dropping and fruit increasing in size, 32 degrees.

"Cherries and plums: When just opening, 29 and 30 degrees, and when in blossom and setting fruit, about 31 degrees.

"Pears: When just opening, 28 degrees; in blossom, 29 degrees, and setting fruit, 30 degrees, and when in blossom and setting fruit, about 31 degrees."

How to Make Grafting Wax

NOW let us see how to make grafting wax. Here is the recipe:

Take by weight 4 parts of resin, 2 parts of beeswax, and one part of tallow or linseed oil.

Break the resin and beeswax into small pieces and melt them together with the tallow. When well melted, pour into a vessel of cold water.

As soon as the mass becomes firm enough to handle, pull and work as you would molasses candy or until it becomes tough. Keep your hands greased with tallow while handling the grafting wax.

Put on the wax while it is hot—not too hot.

How to Select Trees for Home Grounds

BEAUTY of form should be the first consideration. The oaks, elms and beech are generally to be preferred to the maples.

2. **Choose native trees** for general planting, those kinds which you know will flourish in your soil and climate.

3. **Select a long-lived tree.** Such are the willow oak, water oak, live oak, sycamore, or yellow poplar.

4. **Choose a fairly quick growing species,** but don't sacrifice every other consideration to rapid growth.

5. **Suit your species to your soil.**

6. **Choose carefully.** Select evergreens—pines, cedars, or privets—for windbreaks or to screen unsightly objects; but deciduous trees, which let in the sun during the winter and furnish shade in summer, are more suitable for positions near the dwelling or schoolhouse.

7. **Take a tree as free** as possible from insect pests and other diseases.

8. **For lawn planting,** where the beautiful effect of a single tree is desired, plant a pyramidal (i. e. pointed) tree, such as sweet gum, sycamore, willow oak, yellow poplar, or white pine.

9. **Nut Trees,** such as pecans and black walnuts, are beautiful and useful around the home.

10. **For planting** under or among other larger trees, dogwood is recommended.

GRAFTING TOOL

How the Advertising Columns Have Helped Me

WHAT would a magazine be without its advertisements? In the early spring when I want cabbage and tomato plants, I just get out The Progressive Farmer and send to the advertiser that suits me best. Then maybe we have some registered pigs or chickens to sell; we just advertise and they sell without trouble.

However, the colored advertisements interest me most. The delicious loaf bread, hot rolls and cakes, and the pretty rugs, and how I do study and ponder over the arrangement of the kitchen and dining room in the pictures. I also like to look at the car advertisements; it makes one hopeful of brighter days. MRS. R. M. SIMS.

Fruit Planting Table

Kind to Plant	*When to Plant	**Depth to Plant (up to collar) Inches	Distance Apart Feet	***Number Trees Per Acre	Age to Bear Years
Apples	Nov.-April	8 to 12	35 to 40	27 to 50	8 to 10
Pears	Nov.-April	8 to 12	20 to 30	48 to 108	4 to 6
Plums	Nov.-April	8 to 12	16 to 20	108 to 170	3 to 5
Peaches	Nov.-April	8 to 12	16 to 20	108 to 170	3 to 4
Cherries	Nov.-April	8 to 12	16 to 25	70 to 170	3 to 5
				Bushes—	
Quinces	Nov.-April	8 to 12	16 to 20	108 to 170	3 to 5
Figs	Mar.-April	6 to 8	8 to 14	222 to 680	2 to 3
				Trees—	
Pecans	Nov.-April	24 to 30	50 to 60	12 to 7	8 to 10
Mulberries	Nov.-April	8 to 12	25 to 30	48 to 70	3 to 5
Japanese persimmons	Mar.-April	8 to 12	20 to 25	70 to 180	2 to 3
				Vines—	
Grapes (bunch)	Mar.-April	6 to 8	8 to 12	302 to 680	3 to 4
	Mar.-April	6 to 8	12 to 25	70 to 302	3 to 4
				Bushes—	
Currants	Mar.-April	6 to 8	4 x 5	2,178	2 to 3
Gooseberries	Mar.-April	6 to 8	4 x 5	2,178	2 to 3
Raspberries (red)	Mar.-April	4 to 6	3 x 6	2,420	1 to 2
Raspberries (black)	Mar.-April	4 to 6	4 x 5	2,178	1 to 2
Dewberries	Nov. & Dec.-March	4 to 6	5 to 6	1,210 to 1,742	1 to 2
Strawberries	Oct. & Nov.-Mar. & April	2 to 4	1x3 or 4	Plants— 12,000	1

*Fruit trees and hard-wood plants may be planted in the South during their dormant period from November to April provided it is not freezing at the time of planting. Fall set trees get started during mild weather in winter and put out earlier than trees set in late winter or spring.

**Trees and plants should be set in the fall, at the same depth at which they stood in the nursery. The buds should not be buried below the ground.

***The number of trees that can be set on an acre can be increased 25 per cent by alternating the planting on the hexagonal method rather than setting on a square.

FRESH FRUITS FOR FARM HOMES

Devote an acre to fruit growing, and have fresh or canned fruit on the table every day of the year. By making careful selections it is possible to have fresh peaches for five months, fresh pears for six months, apples nearly the whole year. Figs from June to November, and there are Cherries, Berries, Grapes and Pecans to fill in the other times.

Send for our catalogue which describes the best varieties for The Dixie Planter. Our trees are the best that can be grown; they give satisfaction.

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Nurserymen Landscape Gardeners
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Black Seeded Simpson Lettuce Seed,
Mayo's Special Mixture of Sweet Peas,

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Saves Labor—Saves Expense
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Transplants **Tobacco, Tomatoes, Sweet Potatoes, Cabbage, Strawberries, Eggplant** and all similar plants.
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It will pay you. Direct to Planters in Large or Small Lots by Express, Freight or Parcel Post. FREE 68 Page Catalog. Pear, Plum, Cherry Berries, Grapes, Nuts. Shade and Ornamental Trees. Vines and Shrubs.
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No neighbor wanted my bull calf
At ten dollars and a half;
An advertisement made the sale
And brought to me the hard-earned kale!
—"Dixie Dan"

How to Prune Grapes

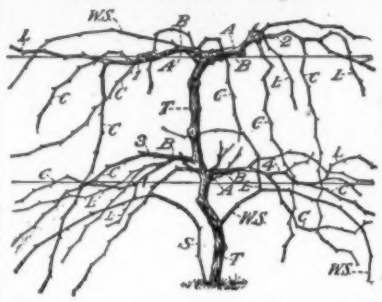
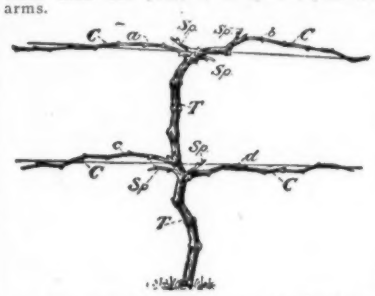


Diagram of a grapvine before pruning, showing the different parts and illustrating the four-arm system of training: A, Arm or ramifications of the branches, usually of wood two or more years old; B, branches which are of mature wood, being several years old; C, canes, called shoots when green and canes when mature; L, laterals, the secondary shoots of a cane; S, suckers, the shoots below the ground from the main body; T, trunk, the stem or main body of the vine; W, S., water sprouts, the shoots which start above the ground from wood older than one year, 1, 2, 3, 4, 2-year-old arms.



A vine pruned according to the four-arm system: C. Canes, called shoots when green and canes when mature; Sp., spurs, canes cut back to one to four eyes; T, trunk, the stem or main body of the vine; a, b, c, d, arms succeeding those shown at their 2-year-old stage in above illustration, at 1, 2, 3, 4.

Disinfecting Sweet Potato Houses

IN the fall, just before sweet potatoes are put in storage, the storage house or cellar should be disinfected thoroughly in order to get rid of the numerous storage-rot germs left there from the previous crop.

The house may be sprayed with a solution made by dissolving 1 pound of copper sulphate in 25 gallons of water or with a solution of formaldehyde made by mixing 1 pint of formalin (40 per cent) in 30 gallons of water. In about 24 hours the house should be sprayed a second time. Similar results may be obtained by white-washing the storage house or cellar, or, better yet, by making up a barrel of winter-strength lime-sulphur solution, 15 pounds of sulphur boiled until dissolved with 7½ pounds of stone lime and then the whitewash added to the mixture. A second coat of whitewash will not be necessary.—U. S. D. A.

Treating Sweet Potatoes Before Bedding to Prevent Rot.

IMMERSE for 5 to 8 minutes in a solution of formaldehyde (commercial 40%) made by diluting one quart formaldehyde in 50 gallons water. This solution may be used repeatedly without losing strength. Bed potatoes soon after treatment.

2. Corrosive sublimate, which may be used instead of formaldehyde, is very poisonous and must be handled in wooden vessels. Dissolve one ounce corrosive sublimate in warm water, add 8 gallons of water, and immerse potatoes for 10 minutes.

3. For a large quantity of potatoes make up 50 gallons of the solution. After treating 10 bushels, add one ounce corrosive sublimate and enough water to bring up to 50 gallons again to keep up strength. Bed potatoes at once.

What Vegetables Need Lime?

THE following grouping lists in column 1, vegetables most responsive to thorough liming; in column 2, those somewhat less responsive; in column 3, those still less responsive; in column 4, those which thrive well in acid soils, while column 5 shows those that do best in an acid soil.

Showing Relative Response of Common Vegetables to Liming

1	
Asparagus	Peas
Beets	Peppers
Cauliflower	Pumpkin
Celery	Tomato
Eggplant	3
Leeks	Brussels sprouts
Lettuce	Beans
Muskmelon	Corn
Onion	Endive
Parsnip	Kohl-rabi
Salsify	Rhubarb
Spinach	4
2	Cress
Cabbage	Parsley
Carrot	Potato (?)
Chard, Swiss	Radish
Cucumbers	Squash
Kale	Turnip
Horse-radish	5
	Strawberries

This Spray
is inexpensive, safe and easy to handle

This new development in spray oil has been thoroughly tested by state experimental stations and private growers. It's not an experiment. The results have been uniformly successful.

You can mix this oil with any ordinary water and use this mixture alone or by adding Bordeaux, nicotine solutions or lead arsenate. It works well in any of these combinations for it's both an insecticide, and a remarkable spreader and sticker.

It stays mixed and it "stays put"—resisting the washing action of rain. Brisk stirring by hand is enough to make it emulsify. Heat and special equipment are unnecessary.

Its action is safe and sure. It is harmless to use and clean to mix. It causes no harmful chemical reactions—contains no chemicals.

Sunoco gives a wonderful control because it gets into all crevices and crannies of bark and foliage. It is very inexpensive and it will not deteriorate from season to season, freeze, clog or corrode.

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CLETRAC'S *crawler* construction, its suitable size, great pulling power, simplicity and economy of operation all appeal to the farmer. The broad tracks with which Cletracs are equipped furnish plenty of traction in any kind of soil—no miring down, no "digging in."

Cletracs, because of the broad tracks on which they travel, are noted for their splendid work in seed-bed fitting. Cletracs *do not pack the soil.*

The purchase of a Cletrac is an investment in a crawler tractor of a size best suited to the all-round power requirements on the farm.

Five millions of dollars in equipment and a big factory constituting upwards of five acres of floor space under roof signify the element of permanency back of Cletracs.

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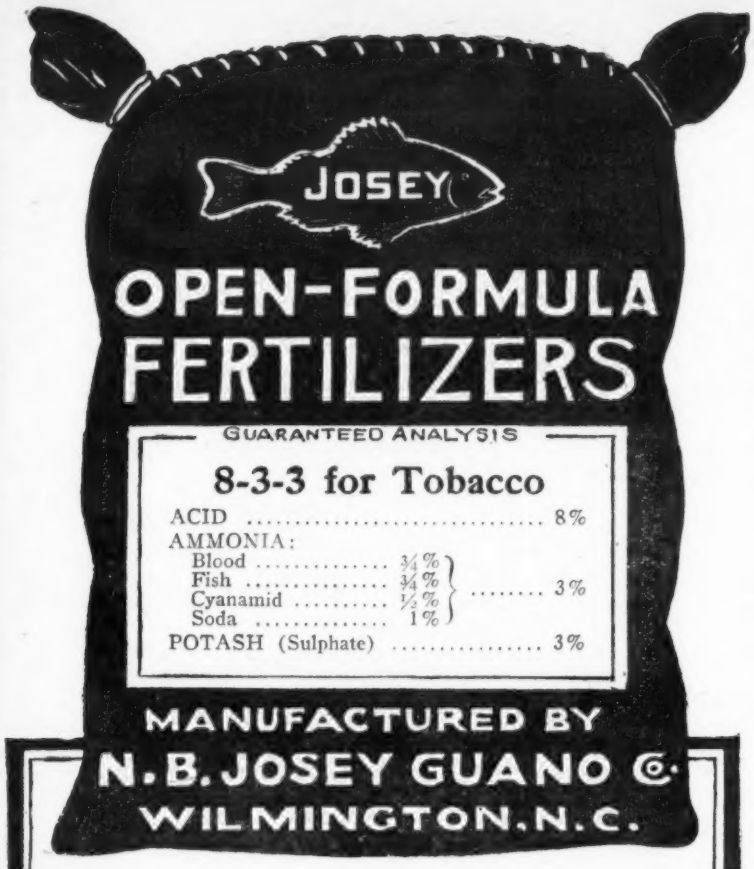

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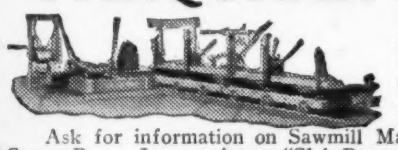

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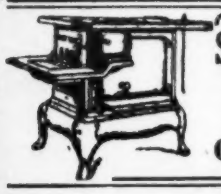

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Crops to Plant Each Month

THE following table is based on the climate of Eastern North Carolina and upper South Carolina. In Western North Carolina and Virginia, of course, planting should begin slightly later in spring and close slightly earlier in the fall than this table indicates; while in lower South Carolina planting should begin earlier in spring and close later in fall. When "(L)" is inserted after the name of a crop, it indicates that it is rather late to plant that crop, but under favorable conditions it may pay to plant it, if earlier planting has not been made.

FEBRUARY

Rustproof oats; strawberry plants; grasses, red clover and alsike.

Last half February only:—Dwarf Essex rape, Irish potatoes.

MARCH

First half March only:—Grass seeds, Burt or 90-day oats, Red clover, Sweet clover and Lespedeza.

Last half March only:—Early corn, field corn, alfalfa, Japan clover. Bed sweet potatoes.

APRIL

Corn, Bermuda grass roots, sweet clover.

First half April only:—Cantaloupe, alfalfa, Bed potatoes.

Last half April only:—Cotton, early soy beans, melons. Set tobacco plants.

MAY

Cotton, corn, peanuts, soy beans, velvet beans, Sudan grass, cornfield beans, melon, pumpkins. Set sweet potatoes and tobacco plants.

Last half May only:—Sorghum, millet, cowpeas.

JUNE

Corn, cowpeas, soy beans, velvet beans, Sudan grass, ensilage corn. Set sweet potato plants.

Last half June only:—Set cuttings sweet potato vines. Sow buckwheat where it thrives.

JULY

Cowpeas.

First half July only:—Early-maturing corn (L.), soy beans, German millet, Sudan grass, late Irish potatoes, cuttings of sweet potato vines.

Turnips, bur clover.

Last half July only:—Rutabagas, early turnips, second crop Irish potatoes.

AUGUST

First half August only:—Second crop Irish potatoes, rutabagas.

Last half August only:—Virginia Winter oats. Bur clover in bur.

SEPTEMBER

Rape, Virginia Winter oats, crimson and bur clover, red clover, grass and clover seeds, rye for grazing, hairy or winter vetch, winter turnips.

First half September only:—Alfalfa, bur clover.

OCTOBER

Rye.

First half October only:—Rust-proof oats, pasture grass, vetch, rape, crimson clover in Coastal Plain.

Last half October:—Sweet and Red clover.

NOVEMBER

Rye as a cover crop for every bare acre.

First half November only:—Wheat, oats, (L).

Last half November:—Wheat (L).

DECEMBER

First half December only:—Rye (L).

Table for Seeding Winter Grains in Virginia

By T. B. HUTCHESON.

Crop	Section of State	Recommended Varieties	Rate of Seeding Per Acre	Treatment for Diseases	Date of Seeding		
					Earliest	Best	Latest
Wheat	Mountain	Fulcaster V. P. I. 131	6 to 7 pks.	Give formaldehyde treatment for stinking smut or hot water treatment for all smuts.	Sept. 15	Oct. 1	Oct. 15
	Piedmont	Leap's Prolific V. P. I. 112	5 to 6 pks.		Oct. 1	Oct. 15	Nov. 1
	Coastal	Leap's Prolific V. P. I. 112	4 to 5 pks.		Oct. 10	Oct. 20	Nov. 15
Oats	Mountain	Va. Winter Gray V. P. I. No. 1	2½ bus.	Give formaldehyde treatment for loose smut.	Sept. 1	Sept. 10	Sept. 20
	Piedmont	Va. Winter Gray V. P. I. No. 1	2 bus.		Sept. 1	Sept. 15	Oct. 1
	Coastal	Fulghum V. P. I. No. 1	2 bus.		Sept. 15	Oct. 1	Oct. 20
Rye	Mountain	Piedmont	1½ bus.	Not likely to need treatment.	Sept. 10	Sept. 20	Oct. 10
	Piedmont	Abruzzi	1¼ bus.		Sept. 20	Oct. 10	Oct. 20
	Coastal	Abruzzi	1¼ bus.		Sept. 20	Oct. 15	Nov. 1
Barley	Mountain	Union Winter	2 bus.	Hot water treatment for smut.	Sept. 10	Sept. 20	Oct. 10
	Piedmont	Union Winter	2 bus.		Sept. 20	Oct. 1	Oct. 15
	Coastal	Union Winter	2 bus.		Oct. 1	Oct. 15	Nov. 1

Table for Seeding Winter Grains in South Carolina

By C. P. BLACKWELL

Crop	Section of State	Varieties Recommended	Rate of Seeding Per Acre	Treatment for Disease	Date of Seeding		
					Earliest	Best	Latest
Wheat	Piedmont	Ala. Blue Stem	6 pecks	Formalin	Oct. 1	Oct. 15	Dec. 1
	Coastal Plain	Leap's Prolific Fulcaster	6 pecks	Formalin	Oct. 15	Oct. 25	Dec. 1
Oats	Piedmont	Fulghum Appler	8 to 10 pecks	Formalin	Sept. 15	Oct. 1	Nov. 25
	Coastal Plain	Fulghum Appler	8 to 10 pecks	Formalin	Oct. 1	Oct. 15	Dec. 1
Rye	Piedmont	Abruzzi	6 pecks	Formalin	Oct. 1	Oct. 15	Nov. 20
	Coastal Plain	Abruzzi	6 pecks	Formalin	Oct. 10	Oct. 20	Dec. 1

BARLEY—Not grown in this state.

Table of Seeding Small Grain in North Carolina

By R. Y. WINTERS

Crop	Section of State	Recommended Varieties	Rate of Seeding Per Acre	Treatment for Disease	Date of Seeding		
					Earliest	Best	Latest
Wheat	Mountain	Fulcaster Fults	6 pecks	Formaldehyde or select disease-free seed	Sept. 15	Oct. 1	Oct. 15
	Piedmont	Purple Straw Leap's Prolific	6 pecks		Oct. 1	Oct. 15	Nov. 1
	Coastal	Purple Straw	5 pecks		Oct. 15	Nov. 1	Nov. 15
Oats	Mountain	Fulghum	2½ bushels	Formaldehyde	Spring	Spring	Spring
	Piedmont	Appler and Fulghum	3 bushels		Sept. 1	Oct. 1	Oct. 15
	Coastal	Appler and Fulghum	3 bushels		Sept. 15	Oct. 1	Nov. 1
Rye	Mountain	Abruzzi	6 pecks		Sept. 1	Sept. 15	Oct. 1
	Piedmont	Abruzzi	6 pecks		Sept. 15	Oct. 1	Oct. 15
	Coastal	Abruzzi	6 pecks		Sept. 15	Oct. 15	Nov. 1
Barley	Mountain	Tennessee Hooded	2 to 2½ bushels		Sept. 1	Sept. 15	Oct. 1
	Piedmont	Tennessee Hooded	2 to 2½ bushels		Sept. 1	Oct. 1	Oct. 15

GENERAL RECOMMENDATIONS

WHEAT.—On the lighter soils of the Mountains and Piedmont sections use the early varieties of wheat, such as Purple Straw, Red May, and Red Hart.

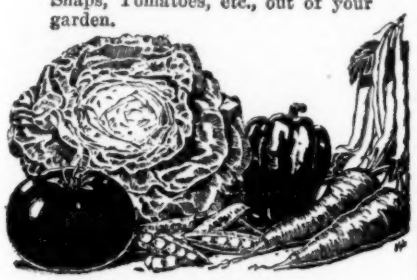
OATS.—For early planting and for combination of oats and vetch or oats and crimson clover, use Appler oats. If large quantities of oats are planted, use both Appler and Fulghum so as to distribute the harvesting period.

RYE.—Abruzzi rye for seed will do better planted at the rate of 4 to 5 pecks. No other winter crop will make as large growth on poor land as Abruzzi rye.

WOOD'S SEEDS

START now to plan your vegetable garden. Make up your mind to have a greater variety of finer flavored vegetables. To have them from early spring till frost. Try some different varieties—plant some of the new improved varieties.

Early in May you can be getting fresh tender vegetables. Be the first in your neighborhood to have Peas, Snaps, Tomatoes, etc., out of your garden.

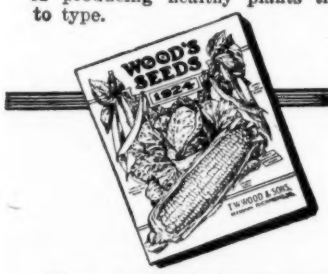


Give Your Garden the Best of Seeds

Good tillage and fertilization are necessary, but nothing can overcome the handicap of poor seed.

Pure bred seed often produce 25% more under the same conditions than ordinary seed that have cross-bred. Market gardeners know that it pays to buy new stock each year.

Wood's seed are carefully bred and selected. All light weight immature seed are taken out during the cleaning and recleaning process. They are tested for germination. The result, fat, virile seed, capable of producing healthy plants true to type.



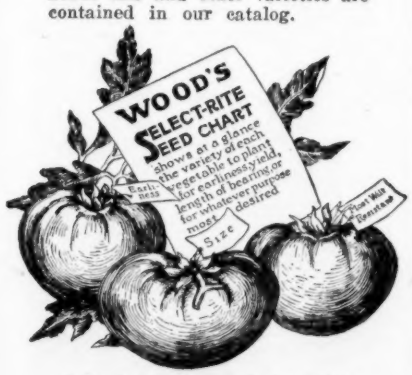
Your copy of this helpful book is ready

It truthfully pictures and describes the finest varieties of field and garden seeds. Tells which varieties of vegetables are best for home use—which to grow for canning or shipping to market.

Post card or letter saying "Send me your 1924 Catalog", will bring your copy by return mail.

Wood's Ingold Cotton
For Earliness and Yield

Makes a heavily fruited crop before the weevil has a chance to damage. Complete information about this and other varieties are contained in our catalog.



Ask that a copy of the Select-Rite Chart be sent with your Catalog. It is free but it will be worth much to you in getting the best varieties for your particular needs.

T. W. WOOD & SONS
(Seedsmen since 1878)
30 S. 14th St. Richmond, Va.

Fertilizer Terms Explained

Absorbent—Material used for absorbing moisture, as straw or sawdust in stables.

Acid Phosphate—A fertilizer made from treating ground phosphate rock with an equal weight of sulphuric acid. It contains from 12 to 18 per cent available phosphoric acid.

Acid soil—A soil in which acid compounds or free acids predominate. Over-acidity is detrimental to the production of most crops.

Air-slaked lime—Quick lime that by exposure to the air has absorbed water and carbon dioxide.

Ammonia—A compound containing 14 parts by weight of nitrogen and three parts by weight of hydrogen. To find the amount of nitrogen in a given number of pounds of ammonia, multiply by 14 and divide the product by 17.

Available plant food—Plant food in such condition that it may be immediately utilized by plants.

Calcium (cal-si-um)—An element which combined with carbon and oxygen forms ordinary limestone. Quick lime is a combination of calcium and oxygen alone.

Calcium Carbonate—Ordinary limestone.

Calcium hydroxide—Ordinary water-slaked lime.

Calcium oxide—Ordinary quick lime.

Carbonate of lime—Same as calcium carbonate. Strictly speaking there is no such thing as 'carbonate of lime," calcium carbonate being the correct term.

Caustic lime—See calcium oxide.

Calcium sulphate (cal-si-um sul-fate)—A chemical combination of calcium and sulphur, oxygen, and water. Gypsum or land plaster is calcium sulphate.

Cyanamid (si-an-a-mid)—The common name for calcium cyanamid, or lime nitrogen. It contains as found in commerce from 10 to 20 per cent nitrogen, this being obtained from the air in the process of manufacture.

Dissolved bone—Bone treated to render soluble its phosphoric acid content, of which it has available from 12 to 14 per cent.

Dried blood—A slaughter house product containing from 6 to 15 per cent nitrogen and small amounts of phosphoric acid.

Filler—A material such as sand, peat, dry earth, etc., sometimes added to commercial fertilizers either to increase their bulk and weight, or to act as driers. The use of fillers is not always to be condemned, since with a given set of materials it is sometimes impossible without fillers to make a fertilizer with a certain percentage of plant foods.

Floats—Finely ground phosphate rock containing from 25 to 32 per cent phosphoric acid, which becomes available very slowly.

Gypsum (jip-sum)—Calcium sulphate. Also called sulphate of lime, land plaster, etc. Formerly used to considerable extent as a top dressing for fields and pastures.

Humus (hu-mus)—Partly decayed organic matter in the soil. The term usually refers to manure applied to the soil or vegetation left on the soil or plowed into it.

Hydrated lime—Ordinary water-slaked lime.

Kainit (ka-nit)—One of the chief sources of commercial potash. Kainit is a product of German and French mines, and usually contains from 12 to 15 per cent potash.

Leach—To dissolve out. Plant food in soils that is dissolved in water and carried away in the underground drainage water is leached out.

Litmus paper—Paper colored with litmus. Blue litmus paper changes to red when put in an acid solution, and is used as a test for soil acidity.

Mulch—A covering of loose earth, straw or litter. Mulches are valuable in retaining soil moisture.

Muriate of potash—A chemical combination of potassium and chlorine (potassium chloride) largely used as a source of potash. Muriate of potash comes in different grades, ranging from 44 to 62 per cent of potash.

Nitrate of soda—One of the most important sources of commercial nitrogen. Pure nitrate of soda contains 16.46 per cent nitrogen, but that ordinarily on the market contains about 15 per cent.

Organic matter—Animal or vegetable matter. As ordinarily used the term means about the same as vegetable matter or humus.

Phosphoric acid—A chemical combination of phosphorus and oxygen; see acid phosphate.

Potash—A chemical combination of potassium and oxygen, and one of the most commonly needed plant foods.

Reverted phosphate—A phosphate that has been changed from a mono-calcium to a dicalcium compound. Somewhat less soluble than the mono-calcium phosphate. Also known as citrate-soluble phosphate.

Sulphate of ammonia—A chemical combination of sulphur, nitrogen and oxygen. Used as a nitrogenous fertilizer. Not quite so readily available as nitrate of soda. Contains 20 to 21 per cent nitrogen.

Sulphate of potash—(Strictly, sulphate of potassium). One of the chief sources of commercial potassium, containing 48 to 50 per cent potash.

Tankage—A slaughter house by-product made up of various waste materials. Tankage is generally fairly rich in nitrogen, but because of its very variable composition should never be bought except by guaranteed analysis.

EXPERIMENTS carried on by North Carolin during the past 14 years have made it possible to say Stuart, Schley, Alley, and Success are the best pecans for Central and Eastern Carolina. Beyond these, and on into the Piedmont, Stuart, Appomattox, and Mantura can be grown.

F.S.R

How to know "cured" fertilizer

How can you tell Royster's "cured" Fertilizer from fertilizer that has not been aged? The greatest difference is seen in the more profitable crops grown by the "cured" fertilizer, but there *is* a difference even to the untrained eye!

"Cured" Fertilizer

After the first mixing, Royster's goods are placed in great bins where they age from four to six months. They are then re-milled and bagged.

Complete Chemical Action

The fine grinding of the ingredients and the close association of the plant-food elements bring about a more complete chemical action during this aging, making a fertilizer which is readily available to the plant from seed time to harvest.

Better Crops

The curing and re-milling are two of the reasons successful farmers say "Royster's helps to make bigger and better crops."

Ask for "Royster's"

Don't buy fertilizer in a hit or miss fashion any longer. Put your faith in the old, well-known Royster reputation and ask for Royster's Fertilizer by name.

F. S. ROYSTER GUANO CO.,
NORFOLK; COLUMBIA; ATLANTA; MONTGOMERY

ROYSTER
Field Tested Fertilizers

FARMER'S FERTILIZER produces larger yields per acre—means a saving in labor. It is possible to double your yields per acre by using a high quality fertilizer. By actual test this method has proven the most economical in the end. You get practically twice the yield of crops from the same labor and teams. Why waste your time and labor otherwise? But be sure you use a high quality fertilizer to accomplish this. The old reliable

FARMERS F.G.C. FERTILIZERS

is your guarantee of the highest possible quality in fertilizers. Look for the trade-mark on each bag—it is your protection.

Money talks at Planting Time, but Quality Tells at Harvest Time. Ask for FARMERS FERTILIZERS, they *tell* at Harvest time. We still have some territory for live agents. Write to our nearest office.

FARMERS GUANO COMPANY
Manufacturers for Over a Quarter of a Century
NORFOLK, VA. • RALEIGH, N. C.

PUREBRED BABY CHICKS

HARDY, HEALTHY CHICKS!

100% LIVE DELIVERY GUARANTEED

Hatched from pure-bred, heavy laying hens on free range.

Varieties—	50	100	500	1,000
White, Brown and Buff Leghorns, Anconas	$7.00	$13	$62	$120
Barred Rocks, Reds	8.00	15	72	140
White Rocks, White Wyandottes, Black Minorcas	8.50	16	77	150
Buff Orpingtons, Silver Wyandottes	9.00	17	82	160

Order right from this ad with full remittance. Bank reference.

KNOX HATCHERY, Box 54, MT. VERNON, OHIO

BABY CHICKS—*From Pure Bred, Healthy, HeavyLaying Flocks that will Grow Into MONEY!*

Varieties	Prices on	50	100	500	1,000
S. C. White, Brown and Buff Leghorns		$7.00	$13.00	$62.00	$120.00
S. C. Black Leghorns, Anconas		7.50	14.00	67.00	130.00
Barred and White Rocks, R. C. Reds, Black Minorcas		8.00	15.00	72.00	140.00
White Wyandottes, extra quality, Barron Wh. Leghorns		8.50	16.00	77.00	150.00
Wh. Minorcas, extra quality, S. C. B. I. Reds		10.00	19.00	....	....
Mixed Chicks		5.75	11.00	55.00	100.00

25 YEARS HATCHING, 20 YEARS SHIPPING CHICKS enables us to supply you with the very best. All hatched in our own hatchery. Postpaid. 100% Live Delivery Guaranteed. A hatch each week from March 1 to September 1. Order from this ad. SAVE TIME! There is no risk. Reference: Farmers State Bank. Free catalogue.

20TH CENTURY HATCHERY, Box 16, NEW WASHINGTON, OHIO.

CHICKS! $11.00 PER HUNDRED AND UP.

From the Leading Poultry County of Indiana

Our Leghorns are Barron and Ferris breeding. Anconas, Sheppard strain. Rocks are Purdue blood. Orpingtons have won ribbons wherever shown. Order today and get chicks when you want them; our old customers are coming back strong and we should have your order early.

Varieties—purebred	Prices on	50	100	300	500	1,000
White and Brown Leghorns		$ 7.00	$13.00	$38.00	$62.00	$120.00
Barred Rocks, R. I. Reds, Anconas		8.00	15.00	43.00	72.00	140.00
White and Buff Orpingtons		11.00	20.00	....	....	.....
All varieties, mixed in one shipment		6.00	11.00	....	....	.....

Reference, Corydon State Bank, Corydon, Ind. Chicks healthy and husky. Can furnish limited number Extra Special stock on White Leghorns. Write for prices today.

REINHARDT'S CHICKERIES, Box B-1, NEW SALISBURY, IND.

CHICKS! POSTPAID. 100% LIVE DELIVERY GUARANTEED.

From selected, heavy laying flocks. Produced by men of many years' experience.

Varieties	Prices on	50	100	500
White, Brown, Buff and Black Leghorns		$7.00	$13.00	$61.75
Anconas		7.50	14.00	66.50
Barred and White Rocks, Black Minorcas		8.00	15.00	71.75
Buff Orpingtons, White Wyandottes, R. C. Reds		8.50	16.00	76.00
Buff Rocks, S. C. Reds		9.00	17.00	....
Mixed Chicks, Heavies		6.50	12.00	57.00
Mixed Chicks, Light		5.50	10.00	47.50

Order right from this ad. Bank reference. Free catalogue.

NEW WASHINGTON HATCHERY, Box P, New Washington, Ohio

BABY DUCKS AND BABY CHICKS PURE-BRED, SELECTED Healthy, Husky STOCK!

Order today from this ad. Reference: Farmers and Citizens Bank, Bucyrus, Ohio.

Varieties	Prices on	50	100	300	500	1000
LEGHORNS, White, Brown and Buff		$7.00	$13.00	$38.00	$62.00	$120.00
ROCKS, Barred and White; ANCONAS, BLACK MINORCAS; R. I. REDS, single and rose comb		8.00	15.00	43.00	72.00	140.00
WHITE WYANDOTTES, BUFF ORPINGTONS		8.50	16.00	47.00	75.00	145.00

WHITE MINORCAS—20 cents each, straight. No order less than 25.
PEKIN DUCKLINGS—30 cents each, straight. No order less than 15.
Mixed Chicks, all varieties, $10.00 per hundred, straight.
Purebred, culled flocks on free range. 25% down books order. Circular free.

LEMERT HATCHERY, Box 400, LEMERT, OHIO

HIGH GRADE BABY CHICKS!

POSTPAID. LIVE DELIVERY GUARANTEE. $10 PER 100 AND UP.

Varieties	Number 50	100	500	1000	2000
S. C. White Leghorns	$7.00	$13.00	$62.00	$120.00	$235.00
Barred Rocks and R. I. Reds, grade A	8.00	15.00	72.50	145.00	285.00
Barred Rocks, R. I. Reds, grade AA	9.50	18.00	87.50	170.00	325.00
White Wyandottes	9.50	18.00			
Mixed, for broilers	6.00	11.00	52.00	100.00	200.00

Wonderful pure-bred chicks hatched in a wonderful way. Order direct from this ad Catalogue free. Stamps appreciated.

TROUTVILLE POULTRY FARM, Troutville, Va.

Day Old Chicks will be ready for shipment Jan. 20.
Thousands and Thousands of

BABY WHITE LEGHORNS

..Ferris' 265 to 300 egg strain. Youngs exhibition strain. Have won every ribbon competed for at Melboro County Fair for two years and every ribbon offered but one.

Won several ribbons at State Fair, 1923.
Won several ribbons and silver cup at Chesterfield.
Over 3,000 laying hens to hatch eggs from.

Chicks sell at 20 cents each, guaranteed live delivery. Book your order now and be sure you will get your chicks when wanted. 10% of order must accompany all orders.

EVANS-COVINGTON POULTRY FARM, Bennettsville, S. C.

LONG'S GUARANTEED CHICKS!

We have built a new hatchery, up-to date in every respect, and increased our incubator space. Our breeding stock has free range and is carefully selected. Every chick lively and healthy. Order from this ad with full remittance and get chicks when you want them. Per 25, 100, 500; S. C. W. Leghorns, $3.25, $13, $62.50; B. Rocks, R. I. Reds, $3.75, $15, $72.50; Anconas, W. Wyandottes, $4, $16, $77.50; Mixed Chicks, $2.75, $11, $52.00. Postpaid. 100% live delivery. Ref. Richfield Bank, Richfield, Pa. **LONG'S RELIABLE HATCHERY, Box 18, MILLERSTOWN, PA.** (On the main line of the Pennsylvania Railroad.)

NORMAN'S QUALITY CHICKS

Do not make the mistake of buying chicks before you get my common-sense catalog. Not so big and showy as some, perhaps, but it is helpful, not confusing, and will inspire confidence from cover to cover.

Remember that all Norman chicks will be from hens absolutely free from white diarrhea by actual blood test by State bacteriologist. All others discarded. Years ahead of ordinary kind. Exhibition and utility Leghorns, Reds, Rocks, Wyandottes, Buff Orpingtons, Anconas.

From a Reliable Hatchery by a Reliable Man

White Rocks C A NORMAN Box 301 Lamoille, Iowa

Youll Profit By Our Chicks MOSS'S CHICKS

BEST IN THE WORLD Pure Bred

We deliver only healthy, vigorous chicks. Leghorns, Rocks, Reds, Wyandottes, Minoreas, Orpingtons, Brahmas and JERSEY GIANTS. Quality considered, our prices are lowest. Immediate delivery. 100% Live Arrival Guaranteed.

ANTHONY H. MOSS Box A-7, Morris Plains, New Jersey.

10 YEARS' EXPERIENCE IN PRODUCING QUALITY CHICKS. We have been building for over ten years on the basis of honest dealing. We have increased every year. Flocks have open range. Carefully bred for production. 100% live delivery guaranteed. All popular breeds. Prices right. Booking orders now. We are in the business to stay and will handle your order on that basis. References, Central National Bank, York, Pa. A postal will bring you full information.

PARK VIEW EGG FARM, Box 14. Dover, Pa.

Extra Quality CHICKS!

Members International Baby Chick Association and sell this best quality to be had. Order from this ad or write for catalogue and see what our customers say. Leghorns, 50, $8.50; 100, $16.00. Barred Rocks and Reds, 50, $9.00; 100, $17.50. Orpingtons, 50, $10.50; 100, $19.50. Mixed broilers, $14.00 hundred. Have other breeds. Poultrymen are placing orders NOW; be business, order now and make money by getting the best from

IDLEWILE FARM & HATCHERY, Wytheville, Va.

WHITE ARROW STRAIN

Single Comb White Leghorns

The South's greatest laying strain. 65,000 chicks this season; any quantity of hatching eggs. Illustrated circular and prices gladly sent upon request. Book your order now for spring delivery, do it now and avoid being disappointed.

WHITE ARROW FARMS, Cheraw, South Carolina.

PEDIGREED CHICKS

BEST QUALITY PEDIGREED CHICKS cost no more to raise but they double your poultry profits. We sell only high grade, pure bred pedigreed, bogan tested, heavy laying Wychoff White Leghorns and Owen's R. I. Reds. Day old chicks and hatching eggs at low prices. 98% live delivery guaranteed. Catalog Free.

CORKIN POULTRY YARDS, Box 598 Greensboro, N. C.

Husky—BRISTOL CHICKS—Hardy

Purebred White Leghorns, Barred Rocks and Rhode Island Reds from inspected flocks. Free Illustrated Catalog.

BRISTOL CHICK HATCHERY, Box P. Bristol, Va.

BLOOD-TESTED CHICKS

No white diarrhea. Raise 100%. Purebred, heavy-laying strains of Rocks, Reds, Wyandottes and Leghorns. Prices right. Catalogue free.

KNOXVILLE HATCHERY, Box A, Knoxville, Tenn.

CHICKS:—Strong, healthy. From heavy layers. S. C. Tom Barron Eng. White Leghorns, Brown Leghorns, 12c. Shepherd's Anconas, 13c. Assorted chicks, 10c. Class A chicks only. 100% live delivery. Postpaid. No money down with order. Catalogue free.

BOS HATCHERY, Zeeland, Mich., Rt. 2P

CHICKS! FROM CERTIFIED STOCK

100% Live Delivery Guaranteed.

Barred and White Rocks, Reds and White Wyandottes, 15c each. White and Brown Leghorns and Anconas, 14c. Order from this ad. 2% cash books order. Reference, Huntington National Bank.

Sunnycrest Poultry Farm, Rt. 5, Huntington, W. Va.

EGGS FOR HATCHING!

Eggs for hatching, S. C. White Leghorns, Trapnested strain for 33 years. 260 to 290, $3 per 15; 290 to 306, $5 per 15. S. C. Rhode Island Reds, $1.75 per 15. Stock for sale.

G. O. WOOD, KENANSVILLE, N. C.

What Varieties of Farm Crops Shall I Plant?

ONE of the most important services that the experiment station in any state can render the farmers is that of thoroughly testing out the leading varieties of the leading farm crops and finding out which varieties give best results. A great deal of most excellent work of this sort has been done by the experimental stations and experimental farms in different sections of North Carolina, South Carolina, and Virginia.

At our request the leaders in this work in the three states mentioned have furnished us the following lists showing the varieties of farm crops which experiments have shown it safest and most profitable for farmers to use:

Best Varieties of Crops for Virginia

Cotton—Trice and King.

Corn—Boone County White, Virginia White Dent, Leaming, Reids Yellow Dent, Hickory King. For silage, Cocke's Prolific and Virginia Ensilage.

Wheat—V. P. I. 131, V. P. I. 112, Fulcaster, Stoner, Leap's Prolific, Fultz.

Oats—Winter: Virginia Gray Winter, V. P. I. No. 1. Spring: V. P. I. No. 1, Texas Rust Proof, Burt, Appler, Fulghum.

Soybeans—Virginia, Hollybrook, Wilson, Mammoth Brown, Mammoth Yellow, Black Eyebrow.

Cowpeas—Whippoorwill, Groit, Brabham, New Era.

Peanuts—Virginia Bunch, Virginia Runner, Spanish.

Tobacco—Bright: Gold Leaf and Warne. Dark: Lizard Tail and Little Dick.

Rye—Abruzzi, Piedmont.

Sorghum—Sugar Drip and Early Amber.

Best Varieties of Crops for North Carolina

Cotton—Mexican, Cleveland, Lightning Express, Edgecombe Cook, King No. 29. (King cotton is recommended only for the extreme northern border of the cotton belt).

Corn—Mountain District: Biggs Seven Ear, Southern Beauty, Hollecombe's Improved, Jarvis' Golden Pro. (Yellow). Piedmont Section: Southern Beauty, Weekley's Improved, Grampian, Petries' Improved, Jarvis' Golden Prolific (yellow), Shoaf's Improved. Cocke's Prolific. Coastal Plains: Bigg's Seven Ear, Latham's Double, Cocke's Prolific, Indian Chief (yellow).

Soybeans—For Coastal Plains Section: for seed: Mammoth Yellow, Haberlandt No. 38, Tar Heel Black, Biloxi. For hay: Mammoth Yellow, Tar Heel Black, Laredo, Biloxi, Otootan. For grazing: Haberlandt No. 38. For soil improvement: Mammoth Yellow, Tar Heel Black, Biloxi, Laredo, Otootan.

Soybeans for Piedmont Section—For seed: Laredo, Virginia, Wilson Black, Mammoth Yellow. For grazing, Haberlandt No. 38. For soil improvement, Mammoth Yellow, Haberlandt No. 38.

Soybeans for Mountain Section—For seed, Haberlandt No. 38, Medium Yellow, Virginia, Wilson Black. For hay, Virginia, Wilson Black. For grazing, Black Eyebrow. For soil improvement, Haberlandt No. 38, Virginia, Wilson Black.

Cowpeas—Groit, Whippoorwill, Brabham, Iron.

Velvet Beans—100 Day Speckled Bunch Velvet Beans.

Peanuts—Virginia Bunch, Jumbo, Virginia Runner, Spanish.

Sorghum—Coastal Plains, Honey or Japanese Seeded Ribbon, Red Amber or Honduras, Sugar Drip.

Upper Piedmont and Mountain—Red Amber, Sugar Drip, Cokers Pedigreed Amber.

Small Grain—Oats, Fulghum and Appler. Wheat, Purple Straw for the lighter soils of the Piedmont and Mountain sections; Fulcaster and Leap's Prolific for the heavier and richer soils of Piedmont and Mountain sections.

Best Varieties of Crops for South Carolina

Cotton—Short staple for wilt free land, Cleveland Big Boll. Short staple cotton for wilt infested land, Dixie Triumph. Long staple varieties, Delta-type, Webber, Express.

Corn—Douthit, Hastings Prolific, Garrick.

Soy Beans—For seed: Mammoth Yellow; for hay, Otootan.

Cowpeas—Varieties for wilt infested land, Brabham and Iron for both seed and hay. For wilt free land for hay production, Unknown, Whippoorwill, and Brabham. For seed production only, New Era and Whippoorwill.

Velvet Beans—Early Speckled for late plantings or sections having short growing seasons; Osceola for medium or early planting and for sections having long growing season.

Peanuts—Medium White Spanish for oil production; for confections, Virginia Bunch and North Carolina.

Sorghum—For Piedmont Section, Orange or Honduras; for Coastal Plains, Honey, Gooseneck or Shoemac; for lower Coastal Plains, Honey, Gooseneck, or sugar cane as a substitute.

Oats—Fulghum and Appler.

Rye—Abruzzi.

Wheat—Alabama Blue Stem, Leap's Prolific, Fulcaster.

How Much Corn in a Bushel?

56 lbs. Shelled corn	1 bushel
70 lbs. Ear corn (shucked)	1 bushel
76 lbs. Ear corn (in shuck)	1 bushel
100 lbs. Green ear corn (in shucks),	1 bushel
About 2½ cubic feet ear corn	1 bushel

KERR'S LIVELY CHICKS

Chicks that carry the blood of winners

Entries of Kerr pullets in the Third Vineland International Egg-Laying Contest finished *second* and *seventh* in the list of Highest Individual Records. These birds from our breeding farm represent the stock from which we breed headers for our Special Matings laying flocks.

Kerr's Special Matings Chicks carry the blood of America's greatest laying families. Their great vigor is the result of constantly infusing heavy producing lines with sturdy, pure-bred flocks. No light-forced pullets—no inbreeding.

You could not produce chicks of this quality at anywhere near their low cost. 100 per cent delivery by mail guaranteed. We will refund or replace any losses in delivery.

Send for your copy of Kerr's Chick Book No. 14. It gives the reasons why Kerr's Guaranteed Chicks are preferred by large and small poultry raisers. Write to-day—it is now ready for mailing.

THE KERR CHICKERIES, Inc.

(Member International Baby Chick Assn.)

Newark, N. J. Springfield, Mass.
Frenchtown, N. J. Syracuse, N. Y.

RIVERSIDE BABY Chicks

From our highest quality stock, selected and mated for large egg production, hatched only from fowls free of Bacillary White Diarrhea as determined by our blood testing. Seven best breeds for money making. Ready to ship now. Capacity 35,000 chicks per week. Parcel post charges prepaid. Live delivery guaranteed. Get our handsomely illustrated Sales Book. A wonderful human interest story in pictures, giving helpful advice. Your copy is ready. It is Free.

Riverside Poultry Farm, RFD 11B Knoxville, Tenn.

Members International Baby Chick Association

Thornwood Baby Chicks

Our Baby Chick Book is now ready for you. It is handsomely illustrated, chock-full of helpful information to Baby Chick Buyers. It is our business to give you the Best the market affords. **16 Varieties**—all from Bred-to-Lay, Free Range, Hogan Tested Stock. Ours is a Baby Chick service. Satisfied Customers and Repeat Orders prove this statement. **Price Low—Quality Good—Very Good.** Get the Book—Order Early. We ship when wanted. Live delivery Guaranteed.

THORNWOOD BABY CHICKS

Thornwood Poultry Yards Dept. 10 Crandall, Ind.

CHICKS

produced under personal supervision of Dr. Theo. Brand, for seven years an expert with the United States Department of Agriculture. He selects and culls every flock. 100% live delivery. Postpaid. Purebred flocks. Order from this ad or send for circular.

	Prices per 50	100	500
S. C. W. Leghorns	$7.00	$13.00	$62.00
R. I. Reds, B. Rocks, Orpingtons	8.00	15.00	72.00
Wyandottes, Minoreas, Anconas	8.50	16.00	75.00

Mixed chickens, 10c straight. Special prices on large orders. Write. Order today and get chicks when you want them.

You take no chances.

DR. BRAND'S CHICK HATCHERY
R. R. F. 15 DAYTON, OHIO

Quality White Leghorn Chicks

World's greatest layers, the husky, hardy, healthy kind. They grow into layers. Sure to please. Hatch every week. 25, $3.65; 50, $7; 100, $13; 250, $32; 500, $62; 1,000, $120. Postpaid. 100 per cent live delivery guaranteed. Book orders any future date with deposit only $1 per hundred.

Few Hundred Laying Hens, $1.50 each

Fain Trading Co., Edison, Ga.

CHICKS, 9c each and up.—S. C. Buff, White and Brown Leghorns. Barred and White Rocks. R. I. Reds. Mixed. Postpaid. 100% live delivery guaranteed. Free range, healthy flocks. Circular free.

Jacob Nelmond, Rt. 7, McAlisterville, Pa.

BiggestHatches Strongest Chicks

That's just what you'll get with my Hatching Outfit, and I can prove it.

My new Poultry book, **"Hatching Facts,"** tells the whole story — gives newest ideas and easiest ways to make poultry pay—it's **Free**—write for it today. Learn the **many advantages** my **Belle City** has over the "old hen way," and the big easy money folks make using my

$13.95 Champion Belle City $21.95
140-Egg Incubator 230-Egg

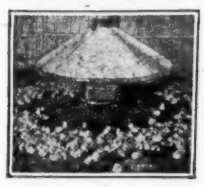
Double Walls Fibre Board—Hot-water Copper Tank—Self-Regulated Safety Lamp Thermometer & Holder—Egg Tester—Deep Nursery. **$6.95 buys 140-Chick; $9.95 buys 230-Chick Hot-Water Double Walled Brooder.** Save $1.95—Order Both--a complete outfit.
140 Size Incubator and Brooder, Only $18.95
230 Size Incubator and Brooder, Only $29.95

Express Prepaid

East of Rockies and allowed to points beyond. **Low Factory Prices** on large capacity **Coal & Oil Canopy Brooders** come with catalog. With a **Guaranteed Belle City Hatching Outfit** and complete **Guide Book**, you can make a **big income.** Also share in my **$1000 in Gold and Other Prizes** Get an early start — Save Valuable Time — Order now, or write me today for my new **Free** catalog, **"Hatching Facts"** A complete guide to success raising poultry for profit. It's interesting. Jim Rohan, Pres.

Belle City Incubator Co. Box 101 Racine, Wis.

Newtown Brooders



Coal Burning

Self-regulating; coal capacity for 24 to 36 hours; powerful metal bar regulator; four convenient sizes. Ask for Circular No. 14.

Oil Burning

New. Improved. Lights with match; will not flare up, go out or overflow; broods up to 500 chicks. See Circular No. 44.

Complete New Incubator Catalog Ready

Incubators 75 eggs capacity to 36,000. Write today.

NEWTOWN GIANT INCUBATOR CORP.
70 Warsaw St., Harrisonburg, Virginia

140 EGG Incubator
EXPRESS PREPAID $13.85

Made of California **REDWOOD**, covered with galvanized iron, double walls, air space between, built to last for years; deep chick nursery, hot water heat, copper tanks.

Shipped complete, set up, ready to run. Express paid East of Rockies.

140 EGG INCUBATOR WITH BROODER $19.75
260 EGG INCUBATOR, ALONE, ONLY . 23.50
260 EGG INCUBATOR, WITH BROODER 32.90
30 days' trial—money back if not O. K.—**FREE Catalog**
Ironclad Incubator Co., Box 81 Racine, Wis.

Keipper Greater Hutch Incubator

Highly perfected, simple of operation, handsome mahogany finish, non-rust copper boiler and tank, fire-proof lamp housing, etc. 80 to 600 egg sizes. Also brooders of exceptional merit. Keipper reputation and experience assures satisfaction. Write today for **free catalog and prices.**

Branches: Johnstown, N.Y., Jacksonville, Fla. and Kansas City, Mo.

KEIPPER COOPING CO.
63 Second St. Milwaukee, Wis.

FREE! ART PICTURES

of Ideal Chickens in Beautiful Natural Colors, 8 x 11 in., suitable for framing. Given only with **Poultry Tribune**—every issue. **World's Great Poultry Paper.** Chuck full of money-making ideas, articles, news by foremost poultry authorities. Published monthly, 80 to 120 pages. **SPECIAL OFFER:**

5 Big Trial Issues 25c
1 Year 50c; 3 Years $1.00
Send stamps or coin today.

Poultry Tribune, Dpt. 13, Mount Morris, Ill.

PUREBRED BABY CHICKS

40 Years' Experience

breeding, hatching and showing HIGH PRODUCING Standard Bred Poultry. One of our flocks of HOLLYWOOD strain Leghorns just finished one year test with a flock average of 208 eggs per pullet. This fine QUALITY in all popular breeds. Ask for our catalogue. It tells the story.

NEW LONDON HATCHERY
Box V New London, Ohio

BABY CHICKS A SPECIALTY
100% delivery guaranteed. Parcel post prepaid. Can also furnish breeding stock and eggs. Don't buy until you see our **FREE CATALOG.** Mention this paper when writing. **The Hoosier Poultry Farm Hatchery, Michigantown, Ind.**

POULTRY Big money. Mrs. Berry tells how in 144-page book, 215 pictures, years of experience. **I START** you with Poultry, Eggs, incubators, **BABY CHICKS**, etc. Over-night book mailed for only 4 cents.
Berry's Poultry Farm, Box 92 Clarinda, Iowa

What to Plant for Poultry Each Month

February—Sow (broadcast) Canada Field Peas 1 bushel per acre; or, oats, 2 bushels per acre. May graze in from 45 to 60 days if weather has been warm.

March—Sow rape broadcast in well prepared ground using 5 pounds of seed per acre. When 8 inches high, can be grazed, or pulled, cut fine and fed. It can be grazed until consumed or crop fails.

May—Be sure this month to plant mangels for winter use, fertilizing and manuring well. Plant seed 1 inch deep in rows 2½ to 3 feet apart. Sow thick, 5 to 7 pounds per acre and thin to 10 inches in rows.

June—Sow soy beans or buckwheat, one bushel of either per acre. Can be grazed when 4 to 6 inches high.

August—Sow turnips, using 5 pounds of seed per acre on well prepared ground. Turnips can be grazed until freezing weather or the roots can be buried in hills or gathered from field as needed and fed as winter succulent feed.

September—Sow crimson clover or sweet clover, using 15 pounds of crimson clover or 25 pounds of sweet clover per acre. Lime land and apply complete fertilizer. Graze when 5 inches high. Can be grazed all winter and well into spring.

October—Sow oats 2 bushels or rye 1 bushel to the acre. Can be grazed until hard freezing weather and at intervals through the winter. Rape for early spring may be sowed.

November—Sow rye or wheat, one bushel to the acre for grazing from January to April.

Rules to Remember When You Renew

IN renewing your subscription to The Progressive Farmer, it will help us if you will remember just the following seven rules:

1. Always write plainly, especially your name. Many people write everything else plainly, but make hopeless marks for their signature.

2. Always give your R.F.D. and box number, postoffice and state. Even if your mail comes all right without the box number, you will likely get it more promptly if the box number shows on the address.

3. Remit by check or money order. You need not add anything to your personal check for exchange as we accept your personal check at its face value.

4. Your label is your receipt and the date on the label shows the exact time when your subscription will expire.

5. If you wish your address changed, be sure and **send your old address as well as the new.** Give us two weeks time to start a paper and notify us two weeks ahead to change an address.

6. If a renewal, be sure and **sign your letter exactly as your name now appears on the label.** For example, if your label reads John Smith, don't sign your letter J. T. Smith, unless you advise us that your paper has been coming to John Smith and you wish your label changed to J. T. Smith.

7. Do not pay money to any strange agent unless he has a letter of authority and gives you a receipt on the printed receipt blanks of The Progressive Farmer. Never trust any agent who offers the paper at less than published rates.

Try This for Winter Eggs

"PLEASE send me a formula for a good laying mash."

This is what Dr. Kaupp of the North Carolina Experiment Station recommends:—

Table salt	1 pound
Bone meal	4 pounds
Wheat middlings	20 pounds
Pulverized oats	20 pounds
Fish meal or meat meal (55%)	20 pounds
Corn meal	35 pounds
	100 pounds

Average Periods of Incubation

Chickens	20-22 days
Geese	28-34 "
Ducks	28 "
Turkeys	27-29 "
Canary birds	14 "
Guinea fowls	26 "
Pheasants	25 "
Ostriches	40-42 "
Pigeons	18 "

The Progressive Farmer's Guaranteed Advertisers

ANY farmer could well afford to pay $1 a year just for the advertisements in our paper and The Progressive Farmer Company's guarantee of reliability that stands behind them. In fact, if he is a real business farmer, he could well afford to pay $10 every year for this service and this insurance—a guarantee of a square deal no matter what he wants to buy: farm machinery, livestock, poultry, seeds, and household supplies, etc. The man who doesn't look over our advertising columns every week is simply cheating himself.

But don't forget that in order to claim the benefits of our Progressive Farmer guarantee, you must mention this guarantee when you write to advertisers.

PUREBRED BABY CHICKS

BUY CHICKS This Year from "The Old Reliable" and get Big Value. Strong, Healthy Chicks.
10 YEARS' BREEDING FOR HEAVY EGG PRODUCTION.

Varieties— Prices on—	50	100	500	1,000
White and Brown Leghorns	$7.00	$13.00	$62.50	$125.00
Buff Leghorns	7.50	14.00	67.50	135.00
Barred Rocks, S. C. Reds, Anconas	8.00	15.00	72.50	145.00
White Rocks, R. C. Reds	8.50	16.00	77.50	155.00
White Wyandottes, Buff Orpingtons	9.00	17.00	82.50	165.00
Assorted, Mixed	6.50	12.00	57.50	115.00

POSTPAID. 100 per cent live delivery guaranteed. Fine Free Catalog. Reference Heyworth State Bank. Order right from this ad, save time. Get them when wanted. Member International Baby Chick Association.
MILLER HATCHERY, Box 33, HEYWORTH, ILLINOIS.

1,000,000 GOOD LUCK CHICKS $10 per 100 and Up!
This season get our big, fluffy, healthy, "GOOD LUCK" Chicks, and REAP PROFITS.

Varieties Prices on—	50	100	300	500
White, Brown and Buff Leghorns	$7.00	$13.00	$38.00	$62.00
Barred and W. Rocks, R. C. and S. C. Reds, Anconas	8.00	15.00	44.00	72.00
W. Wyandottes, Black Minorcas, Buff Orpingtons	8.50	16.00	47.00	77.00
Silver and Partridge Wyandottes, Light Brahmas, Buff Minorcas, Speckled Sussex	11.00	20.00	58.00	95.00
Mixed, all varieties				$10 per 100, straight

Postpaid, full live delivery guaranteed. Bank reference. Order right from this ad. Get them when you want them. You take no chance on "GOOD LUCK CHICKS."
NEUHAUSER CHICK HATCHERIES, Box 92, NAPOLEON, OHIO.
Catalog Free. Member International Baby Chick Association.

CHICKS BIG, FLUFFY, FULL-O-PEP.—Well hatched from healthy, laying hens of best strain on free range.

Varieties— Prices on	25	50	100	500
S. C. White or Brown Leghorns	$3.50	$6.75	$13.00	$62.50
Barred and White Rocks, Reds, Anconas, Blk. Minorcas	4.00	7.75	15.00	72.50
White Wyandottes, Buff Orpingtons	4.50	8.75	17.00	82.50
Jersey Black Giants	7.75	15.25	30.00	147.50

Eggs for hatching, one-half price of chicks. 100% live arrival guaranteed. Prepaid. Order direct from this advertisement and save time. Ref. Huron Co. Banking Co. Quick delivery. Free catalog.
NORWALK CHICK HATCHERY BOX B-10 NORWALK, OHIO

CHICKS HIGH BRED — HATCHED RIGHT — 350,000 for 1924. ATHENEON STRAINS INSURES big, husky chicks from healthy, heavy laying, free range, culled flocks. That's why our customers RE-ORDER.

Varieties— Prices on	50	100	500	1,000
S. C. White, Brown and Black Leghorns and R. C. Brown Leghorns	$6.75	$13	$62	$125
Barred and White Rocks, S. C. and R. C. Reds and Anconas	7.75	15	72	145
White and Silver Wyandottes, Black Minorcas, Silver Campines	9.25	18	85	170

Mixed, heavy breeds, $12 per 100; light breeds, $10 per 100. Postpaid. **100% live delivery guaranteed.** Catalog free. Ref. Athens National Bank. **Order now** from this ad. Get them when wanted.
ATHENS CHICK HATCHERY, DEPT. C., ATHENS, OHIO

BABY CHICKS PREPAID TO YOU 100 PER CENT ALIVE
Hatched from vigorous, heavy laying, pure bred flocks.

Varieties, Prices on	50	100	500	1000
S. C. W. and Brown Leghorns, Anconas	$7.50	$14	$67.50	$130
Barred Rocks, S. C. Reds	8.50	16	77.50	150
White Rocks, Buff Orpingtons, White Wyandottes, R. C. Reds	9.00	17	82.50	160
Buff Rocks, White Orpingtons, Black Minorcas, Black Langshans, Light Brahmas	9.50	18	87.50	170
Assorted, Heavy Breeds	7.00	13	62.50	120
Assorted, all breeds mixed	5.50	10	47.50	90

Get our free catalog. References: Millikin National Bank. Order right from this advertisement and save time. **HAYES BROS. HATCHERY, Box N. 34, Decatur, Ill.**

BABY CHICKS COMBINED QUALITY TYPE PRODUCTION
100% Live Delivery Guaranteed
S. C. White, Buff, Brown Leghorns; Barred and White Rocks; R. I. Reds; Anconas; Wyandottes; Black Minorcas; Buff Orpingtons; Light Brahmas; Black Giants.
BIG, HUSKY, VIGOROUS CHICKS
Popular Prices—Chicks 12c up.
S. C. White Leghorns--High Egg Producing--Show Birds Winners--New York-Chicago-Kansas City-Dallas, Texas
FREE Illustrated Catalogue No.. 41
WHITE HILL FARMS CO.
10 West 13th Street **KANSAS CITY, MO.**

CONTINENTAL Vitality BABY CHICKS
Leading Standard Pure Breeds. All from free-range, heavy laying, healthy parentage. Shipped post paid from one of our nearby hatcheries. Live delivery guaranteed. Illustrated Baby Chick Book 12P is FREE to you.
Continental Hatcheries General Offices: SPRINGFIELD, OHIO

BABY CHICKS From 200-Egg Hens
Chicks from winter laying, farm raised, mature stock. White Wyandottes, White Rocks, Black Minorcas, S. C. White Leghorns, Rhode Island Reds, Barred Rocks, White Orpingtons, Anconas, Black Jersey Giants, Indian Runner Ducks. $15 per 100 up. Live delivery guaranteed. Parcel post prepaid.
HATCHING EGGS—$8 per 100. Circular Free.
GLEN ROCK NURSERY & STOCK FARM, Ridgewood, New Jersey.
Southern orders filled from our breeding farm in Maryland.

Purebred Baby Chicks!

Single Comb White Leghorn Chicks from parent stock of size, type and laying qualities. **Breeders** and not a **hatchery.** Every egg hatched in our 60,000 capacity incubators produced on our own yards. Three large hatches every week. Price, $20.00 per 100; $90.00 per 500; $175.00 per 1,000. 100 per cent live delivery guaranteed by parcel post.
ALABAMA LEGHORN FARMS CO., Ensley, Alabama

BABY CHICKS THAT LIVE AND GROW
11c and up. Shipped postpaid from Ohio's most Southern Hatchery. Barred, White and Buff Rocks; R. C. and S. C. Reds; White Wyandottes; Anconas; White and Brown Leghorns. **From pure bred, heavy laying free range stock, select and bred by specialist breeders.** Circular Free.
The Ohio Hatchery, Dept. P, Decatur, Ohio

MARCY FARMS JERSEY BLACK GIANTS
The ideal combination breed —for Show, Eggs, Meat. Marcy Farms' birds won best display 1921, '22, '23 at Mad. Sq. Garden — made highest records in official laying contests. Largest, choicest table Poultry.
Order your hatching eggs and baby chicks early. Send for free circular. Illustrated catalogue, 5c stamp. **Marcy Farms, Box 14, Freehold, N.J.**

CHICKS $13-$16 Per 100
White, Brown, Buff Leghorns, Anconas—50, $7; 100, $13; 500, $62. Barred Rocks, Rose and S. C. Reds—50, $8; 100, $15; 500, $72. Buff and White Wyandottes, Buff Rocks—50, $8.50; 100, $16; 500, $78. Chicks from Special Flock of Hollywood White Leghorns, $15, per 100. All chicks strong, vigorous and healthy, hatched from heavy laying flocks. Postpaid. Full live delivery guaranteed. Reference Kirkersville Savings Bank.
KIRKERSVILLE HATCHERY, Box K, Kirkersville, O.

Park's Barred Rocks
BRED-TO-LAY—200-EGG STRAIN—CHICKS, EGGS
Grand Hens, mated with pure Park's 200-egg strain males. Will greatly improve the laying qualities of any flock. SHEPPARD'S ANCONAS.—Rare and beauty. These two strains bred on our own farm. Prices moderate. Also Leghorns, Rocks, Reds, Orpingtons, Wyandottes, Anconas from heavy laying, purebred flocks. Circular. Bank reference.
MID-OAK POULTRY FARM,
Route 4, Box 101, Bloomington, Illinois

KENTUCKY HATCHERY CHICKS!
We are booking orders with a 10% deposit for early delivery. Name the exact week you want your chicks. Our first hatch is off February 21st—so send in your order. Barred Rocks and Reds, $16 per 100. Brown and White Leghorns, $13 per 100. White Rocks, $18 per 100. White Wyandottes, $18 per 100. We also have Light Brahmas, White and Buff Orpingtons, Black Minorcas and Black Langshans. **KENTUCKY HATCHERY, 352 W. 4th St., Lexington, Ky.**

SUPERIOR CHICKS
Live Arrival Guaranteed and postage paid on leading varieties of standard breeds of "SUPERIOR" chicks, heavy laying stock. Lowest prices. Best quality. Prompt delivery. Send for big FREE illustrated catalogue.
Superior Poultry Co., Box 51 Windsor, Mo

HUSKY CHICKS
PURE BRED CHICKS PAY BEST. My heavy laying, personally inspected, Hogan tested flocks, most profitable leading varieties, produce chicks that pay you big profit. Only one grade the best. Low prices. 97% live delivery guaranteed. Postpaid. Catalog Free. Write today.
SIEBS HATCHERY Box 528, Lincoln, Ill. (Member I.B.C.A.)

SULLIVAN QUALITY BABY CHICKS
All leading breeds. Hogan tested, culled and carefully selected for quality and high egg production by D. D. Sullivan, many years Nationally known breeder of record breaking, prize winners. Live delivery guaranteed. Catalog Free.
QUALITY FARMS, Box 102, WELLSVILLE, MO.

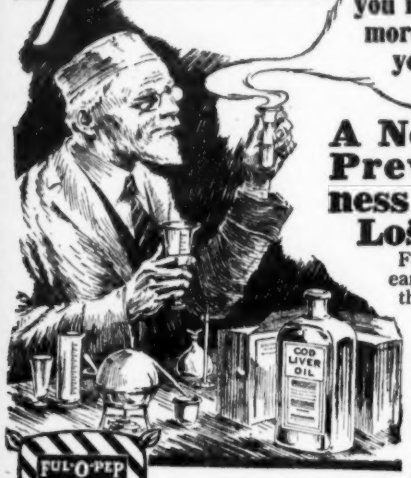
PURE BRED CHICKS
13 leading varieties, from **Hogan tested,** free range flocks. **Free delivery, special prices.** Bank reference. **REX POULTRY COMPANY, DEPT. N. CLINTON, MO.**

QUALITY Chicks & Eggs
48,000 PURE BRED BREEDERS. 15 varieties. Best laying strains. Incubate 25,000 eggs daily. Catalog Free. Prewar prices. Free live delivery.
Missouri Poultry Farms, Columbia, Mo.

Big Value CHICKS
Pure bred; highest quality; big size; high egg production. Low price. Catalogue free.
WOLF HATCHING & BREEDING CO., Dept. 9, Sibleyburg, Okla.

Science's Latest Gift to Poultrymen

will help you raise more of your Chicks



A New Discovery that Prevents Leg Weakness and Reduces Death Losses of Baby Chicks

For years the leg weakness scourge of early and late hatched chicks has been the thing that has robbed poultry raisers of a big share of their profits.

For more than 50 years scientists have been working on this problem—at last it has been solved! They have discovered that Cod Liver Oil, being extremely rich in A and D Vitamines, when combined with other health giving ingredients overcomes leg weakness and produces such strong bones and healthy, vigorous growth that chick death losses are greatly reduced. They also found that Cod Liver Oil had the same effect as May sunshine on chicks that were raised indoors—in short Cod Liver Oil proved to be "Bottled Sunshine" for baby chicks, making it possible to raise chicks in the early and late cold months as in May or June. After the discovery of this valuable aid to baby chick raising, we developed a method of including this wonderful life-giving element in Ful-O-Pep Chick Starter, which can now be had at any feed dealer's store.

We've taken Cod Liver Oil and combined it with other health giving ingredients and are now offering to poultrymen in Ful-O-Pep Chick Starter a feed that our research department has proved reduces death losses to the minimum and makes chicks grow and thrive in the cold winter and spring months just as if they were out of doors in the warm May sunshine with all the bugs and tender grasses they could eat. The Cod Liver Oil is so thouroughly mixed by our own process that it is completely absorbed by other ingredients. Ful-O-Pep Chick Starter is perfectly dry — not oily or gummy.

Feed Ful-O-Pep Chick Starter to your chicks this year—it will cut down your death losses by eliminating leg weakness. It will make your chicks grow this season as they never grew before. You will never know how much this latest gift of science means to you until you give it a trial. Your dealer can supply you with Ful-O-Pep Chick Starter.

Write for This FREE Folder Today

Write today for big illustrated circular telling all about this new and important discovery — how and why it will greatly reduce your baby chick losses. Just send name and this valuable circular will be sent to you free.

The Quaker Oats Company
Poultry Service Dept. 1636
MEMPHIS, TENN.

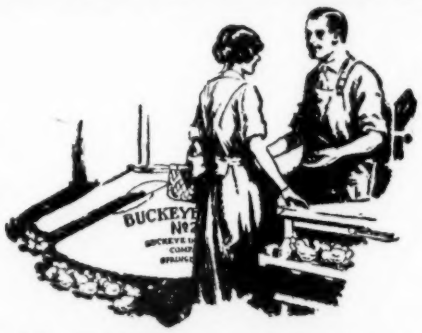
FUL-O-PEP Way of Raising Chicks

(14)

Why Should You Gamble?

When you know that thousands upon thousands of incubators and brooders are actually being thrown away every year to be replaced with

Buckeye



More than 700,000 successful breeders are hatching 175,000,000 chicks a year in Buckeye Incubators, and raising 150,000,000 a year under the Buckeye System of *Colony* Brooding.

Big hatcheries, with capacities of 50,000 to 500,000 eggs, are using Buckeyes.

Nearly all the agricultural schools *teach* with Buckeyes.

Why gamble, then? Why experiment? Buy a Buckeye first, and *know* you'll be successful.

Buckeye Incubators are built in every size from 65-egg to 10,368-egg capacity. Buckeye Brooders are built in all sizes up to 1,200-chick capacity, to burn oil, coal or gas.

The best book of real information you can get on poultry raising for profit is the new Buckeye catalog. We want you to have it, and will gladly send it on request. Mention whether you are interested in incubators, coal-burning brooders or blue-flame brooders.

THE BUCKEYE INCUBATOR COMPANY
734 Euclid Avenue, Springfield, Ohio, U. S. A.
World's Largest Manufacturer of Incubators and Brooders

PLANS FOR POULTRY HOUSES! All style 150 Illustrations; secret of getting winter eggs, and copy of "The Full Egg Basket." Send 25 cents. LAND POULTRY JOURNAL Dept. 29 Indianapolis, Ind.

64 BREEDS Most Profitable chickens, ducks, turkeys and geese. Choice, pure-bred northern raised. Fowls, eggs and incubators at low prices. *America's great poultry farm.* At it 31 years. Valuable 100-page book and catalog free. R. F. NEUBERT Co., Box 846, Mankato, Minn.

The Poultryman's Dictionary

A Glossary of Technical Terms Referring to Poultry

BARRING.—Bars or stripes extending across a feather at right angles to its length, or nearly so, as in Plymouth Rocks.

Beard.—In chickens, a group of feathers depending from the throat as in Polish or Houdans. In turkeys a tuft of coarse, bristly hairs four to six inches long projecting from upper part of breast in mature males.

Beak.—The projecting mouth parts, upper and lower mandible of chickens and turkeys.

Bill.—The projecting mouth parts of water fowls.

Blade.—The rear part of a single comb, back of last well defined point.

Brassiness.—In white breeds, having the color of brass.

Breed.—A distinct race of fowls, the members of which maintain distinctive shape characteristics in common. Breeds includes varieties, as, for example, Barred, White, Buff, or Partridge varieties of Plymouth Rocks.

Brood.—All the young birds hatched at one time by one hen or kept in one brooder.

Chicks.—The young of the domestic hen. Applied until sex can be distinguished.

Cock.—A male fowl one year old or over.

Cockerel.—A male fowl under one year old.

Comb.—The fleshy protuberance growing on top of a fowl's head. Standard varieties are: Single, rose, pea, V-shaped, and strawberry, all others are modifications.

Condition.—State of a fowl as regards health, and order of plumage.

Crest.—A tuft of feathers on the head of a fowl.

Crop.—The receptacle in which a fowl's food is accumulated on its way to the gizzard.

Disqualification.—Any defect or deformity which renders a fowl ineligible for a prize.

Down.—The first hairy like covering of chicks. Also sometimes, little tufts on shanks, toes, or webs of feet of smooth-legged fowls.

Drake.—Male of the duck family.

Duckling.—Young of the duck family.

Ear-lobes.—The folds of bare skin just below the ears. Vary in size, also in color, white, red, purple, etc.

Fluff.—The soft feathers about thighs and posterior parts of a fowl. The soft, downy parts of a feather.

Flights (or primaries).—The primary feathers of the wing, used in flying but nearly out of sight when wing is folded.

Hackle.—The neck plumage of males, formed of a long narrow hackle feathers.

Hock.—Same as knee-joint. Joint between thigh and shank.

Knock-kneed.—Deformity. Legs come too near together at knees, and spread out laterally below knees.

Lacing—Laced.—Feather with a band or edge of color differing from ground color of feather.

Mealy.—In plumage. Having appearance of being sprinkled with meal.

Parti-colored.—Fowls, or feather of two or more colors.

Pea Comb.—A triple comb, medium length, like three single combs with short but distinct serrations. Middle row the longest, and each comb somewhat larger in middle than at ends.

Pen, or Breeding Pen.—One male and four females.

Penciling.—Small stripes or markings on a feather, usually following outline of feather in crescentic form as in Brahmas.

Plumage.—The feathers of a fowl.

Poult.—The young of the domestic turkey.

Poultry.—Domestic fowls raised for table, for their eggs or feathers, or for exhibition.

Pullet.—A female fowl under one year old.

Quill.—The hollow, horny stem or basal part of a feather.

Rose Comb.—A low, thick, solid comb, with upper surface covered with small rounded points, terminating at rear, in a well defined spike. In some varieties, like Hamburgs, it turns upward, in Leghorns is level, and in Wyandottes turns downward.

Saddle.—The rear part of the back of a male bird extending to the tail. The feathers growing out of it are called saddle feathers.

Scaly Leg.—A germ-caused incrustation or deposit on and under the leg scales.

Secondaries.—The long quill feathers growing in the second joint of a fowl's wing, visible when wing is folded; with primaries, the main feathers of wing.

Serrated.—Notched on edge like a saw.

Shaft.—The stem of a feather, the part filled with pith.

Shank.—The lower scale-covered part of a fowl's leg, above the foot and toes.

Sickles.—The long, curved, upper feathers of a male bird's tail.

Side Sprigs.—Abnormal, well-defined growths on the side of a comb.

Single Comb.—A comb consisting of a single, fleshy serrated formation on the head, extending from the beak and extending back over the crown of the head. Usually have five points.

Spangle.—A clearly-defined marking of distinctive color at the end of a feather.

Squirrel Tail.—A fowl's tail part of which projects beyond a perpendicular line toward the head.

Strain.—A family of any variety, bred in line by one fancier during a number of years, that has acquired more or less of individual characteristics which distingush it from other families or strains of the same variety.

Strawberry Comb.—Approaching in shape the outline and surface of a strawberry.

Surface Color.—The visible color of plumage when a fowl is at rest.

Symmetry.—Perfection of outline and harmony of all parts of a fowl, as defined by the Standard of Perfection.

Tail Feathers.—Main. The straight and stiff feathers below the sickles and tail coverts.

Thighs.—The part of a fowl's leg above the shanks.

Thumb Mark.—A disfiguring depression on the side of a single comb.

Toe Feathering.—Feathers on the toes of a fowl.

Trio.—One male and two females.

Typical.—Expressing a characteristic color or form representive of a breed or variety.

Under Color.—The color of the downy portion of the plumage not visible when plumage is in natural position.

Variety.—A subdivision of a breed having the standard shape of the breed to which they belong, but differing in color of plumage, shape of comb, etc.

V-shaped Comb.—A comb forming two well-defined horn like sections. Like Houdans.

Wattles.—The pendent growths at sides and base of beak.

Web.—Of feathers, the flat plumed portion. Webs of feet, the flat skin between the toes. Web of wing, the triangular skin attaching wing to body.

Wry Tail.—Tail of a fowl permanently turned to one side.

An Easy Way to Catch a Chicken

SELECT a large stiff wire about 8 feet long, and bend one end back 2 inches to make a hook to fit the chicken's leg. On the other end bend four inches in a circle or loop to make a handle. Feed the chicken and while it is eating, put the hook forward, catch it on the leg of the chicken and draw it along on the ground until the fowl is within reach of the hand.

How to Cull Poultry for Egg Production

THE following table copied from a leaflet published by the College of Agriculture, Extension Service, University of Maine, contains the gist of the art of culling.

Indications	Low Producer	High Producer
Plumage	Molting in July, Aug. or Sept.	Ragged, worn, late molt
Pelvic bones	Hard and rigid	Soft, pliable
Vent	Yellow, shrunken, dry	White, dilated, moist
Eyes	Sunken	Prominent, set well apart
Eye-ring	Yellow	White
Beak	Yellow	White
Comb	Pale, small, shriveled	Red, large, full
Face	Heavily fleshed, yellow	Rather lean and free from yellow color
Shanks	Yellow, round and full	White, thin and flat
Capacity, pelvic bone to breast bone	Shallow, or full of hard fat	Deep, full across abdomen, soft
Skin	Thick, underlaid with fat, dry	Thin, soft and pliable
Body	Shallow and round	Deep both front and rear, slab-sided

Farmers' Exchange

And Breeders' Cards

CASH WITH ORDER

This is the CAROLINAS-VIRGINIA EDITION of The Progressive Farmer, covering North Carolina, South Carolina, and Virginia, but it will pay many advertisers to use other editions of The Progressive Farmer also. The following table shows rates per word for advertising in the FARMERS' EXCHANGE department and also rates for LIVESTOCK DISPLAY advertising in each edition of The Progressive Farmer:—

Edition—	Circulation—	States Covered—	Farmers' Exchange—	Livestock Display—
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Fine cotton, tobacco and grain farms for sale or rent. Joel Layton, Lillington, N. C.

I offer for sale my farm at Ruskin, N. C. 10 room 2-story dwelling; good store house; cotton gin; saw mill, grist mill. One to 500 acres good land on sand clay road, 3 miles White Oak high school; 8 miles of Elizabethtown. I. H. Cheson.

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HELP OR POSITION WANTED

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We Pay $200 Monthly Salary—Furnish car and expenses to introduce our guaranteed poultry and stock powders. Bigler Company, X725, Springfield, Ill.

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Family to farm cotton or tobacco on shares. Productive land; no wilt or boll weevil. Bratton Crocker, Authers, Va.

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Earn $110 to $250 monthly, expenses paid, as Railway Traffic Inspector. Position guaranteed after completion of 3 months' home study course or money refunded. Excellent opportunities. Write for free booklet C-92. Stand. Business Training Inst., Buffalo, N. Y.

Want three men or boys (white) from a good family to work on farm in a good neighborhood. Equipped with machinery and conveniences; board and lodging in family. References exchanged. Will pay good wages. Good home for good men. G. E. Robertson, Blackstone, Va., Rt. 1.

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Fruit Tree Salesmen—Profitable, pleasant, steady work. Good side line for farmers, teachers and others. Permanent job for good workers. Write today for terms. Concord Nurseries, Dept. 25, Concord, Ga.

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Large supply of new and slightly used machinery—Priced cheap for quick sale. Engines, boilers, gasoline engines, tractors, trucks, trailers, grinding mills, sawmills and many other items. Stockdell-Meyers, Petersburg, Va.

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Lucretia Dewberry plants for sale, ten dollars per thousand. Apply to D. H. Kelly, Rt. 2, Cameron, N. C.

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Best Early Jersey plants, 500 postpaid $1.00. Glenn Love, Newton, N. C.

Early Jersey plants, 500-$1.00, postpaid. R. I. Love, Newton, N. C.

Early Jersey Cabbage plants, 500 $1.00, postpaid. Craig Cline, Newton, N. C.

Frostproof Plants, 500-$1.00; 1,000-$2.00, postpaid. G. W. Murray, Claremont, N. C.

Early Jersey Cabbage plants, 300-75c, 500-$1.00, postpaid. Eureka Farm, Claremont, N. C.

Frostproof Early Jersey Cabbage plants, 500-$1.00, postpaid. Garvey Dellinger, Newton, N. C.

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Cabbage plants ready now; $1.75 1,000. Satisfaction guaranteed. W. F. Murray, Claremont, N. C.

Plant Prices ready and free. Sent double quick on request. Evergreen Farms, Thomasville, Ga.

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10,000,000 Cabbage, Onion and Tomato plants; any variety, $1.50 1,000. Catalogue free. Clark Plant Co., Thomasville, Ga.

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Our Hardened Early Jersey and Charleston Wakefield Cabbage Plants escaped the freeze. $2 per 1,000 here; prepaid $2.50; while they last. Crowell's Plant Farm, Concord, N. C.

Frostproof Cabbage plants, leading varieties; Prize-taker and Bermuda onion plants. Prompt shipment, good plants; 300-$1.00, 500-$1.50, 1,000-$2.50 postpaid; express collect, $2.00 per thousand. Springdale Farm, Monroe, N. C.

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Frostproof Cabbage Plants. Wakefields. Limited supply of good plants left from freezes. Order now. Prompt delivery. Postpaid, 300, $1.25; 500, $1.50; 1,000, $2.75. Expressed, 10,000, $25 cash. Satisfaction guaranteed. Tidewater Plant Co., Franklin, Va.

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Genuine Frostproof Open Field Grown Cabbage Plants make heads four weeks earlier than home grown. Early Jersey, Charleston Wakefield, Succession, Flat Dutch. Postpaid: 200, $1; 500, $1.75; 1,000, $3. Express or postage collect, $2 a 1,000. Catalogue free. Jefferson Farms, Albany, Ga.

Frostproof Cabbage Plants growing for March delivery. Send cash and book your order for the earliest plants. Wakefields, Copenhagen, Succession, and Flat Dutch. Postpaid, 300 90c; 500 $1.25; 1,000 $2.25. Charges collect, 1,000 $1.50; 5,000 $7.00; 10,000 $12.50. Thomasville Plant Co., Thomasville, Georgia.

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Dahlias, Peonies and Gladioli. Finest grown. Seventy varieties. Catalogue free. Robert C. Young, Greensboro, N. C.

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Kudzu Plants for Sale.—$15.00 per 1,000. Edward Eppes, Tallahassee, Fla.

Write for Descriptive Booklet on Kudzu Plants and Prices. T. Kiyono, Crichton, Ala.

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Plant Kudzu for hay and pasture; more nutritious than alfalfa and yields more. Never has to be replanted and grows on poor soil without fertilizer. Write for information. Cherokee Farms, Monticello, Florida.

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Improved Klondike berry plants, $2.00 thousand, 10,000 and over. J. A. Omar, Jackson, Tenn.

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Progressive Everbearing Strawberry Plants, $1.50, 100; $6.00, 1,000. Rosebank Nursery, Winchester, Tenn.

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Peach Trees 10c up. Other stock reasonable. Yadkin Nursery, Star, N. C.

Peach Trees, 10c up. Other nursery stock reasonable. Price list free. Dyer Nursery, LaFayette, Ga.

Write for our new low spring prices on peach, apple, pear, plum, pecan and other nursery stock. Crowell's Plant Farm, Concord, N. C.

Peach Trees and Other Trees for Sale—All the best varieties. Order now. Shipping every day. Agents wanted. Concord Nursery, Dept. 25, Concord, Ga.

Guaranteed Nursery Stock—Peach, Apple and Pear—Our Coeclon pear is apparently immune from blight. All varieties of apple are specialties. Garden Spot Nursery, LaGrange, N. C.

Trees, Plants, Shrubs Guaranteed, direct from grower. Lowest prices. New—Dr. Worcester hardy peach and Ohio Beauty apple. Planting book free. Woodlawn Nurseries, 897 Garson Ave., Rochester, N. Y.

Extra Choice, Bred-up, Early Bearing, Budded and Grafted Paper Shell Pecan Trees for Sale—Largest pecan nursery in world. Every tree guaranteed. Catalog and price list free. Bass Pecan Company, Lumberton, Miss.

Fruit Trees—Direct to Planters, in large or small lots, by express, freight or parcel post. It will pay you to get our prices before buying. Free, 68-page catalog. Peaches, apples, plums, pears, cherries, grapes, nuts, berries, pecans, vines; ornamental trees, vines and shrubs. Tenn. Nursery Co., Box 108, Cleveland, Tenn.

SEED

ASPARAGUS

Pedigreed Washington Asparagus roots and seed.—Roots $7.00 per thousand; seed $1.00 per pound. Special prices on roots above 25 thousand. As to quality, etc., reference Manager South Carolina Asparagus Growers' Association, Ridge Spring, S. C. J. H. Watson, Monetta, S. C.

ARTICHOKES

For Sale.—Jerusalem Artichoke, for seed or pickling, $2.00 per bushel. State for what purpose desired. L. R. Rhame, Holly Hill, S. C.

BEANS

For Sale—Mung Beans. W. L. Rice, Woodleaf, North Carolina.

Mammoth Yellow Soy Beans.—Buy now, will advance. J. L. Simmons, Belhaven, N. C.

Selected A Grade—Early Speckled Seed Velvet Beans, $1.60 bushel. Murphy & Palmer, Sandersville, Georgia.

Choice seed Velvet Beans and Peas.—All varieties. Get our prices before you buy. H. M. Franklin, Tennille, Ga.

Select quality Ocosla Stringless Seed Velvet Beans, $1.90 bu.; bunch beans $2.25 bu. Murphy & Palmer, Sandersville, Ga.

Laredo Soy Beans—Five pounds $2.00; peck $5.00; bushel $17.50, all delivered. One bushel will plant 10 to 12 acres. T. O. Epps, Kingstree, S. C.

Selected Early Speckled Velvet Bean Seed in 2 bu. bags at $1.50 per bu., f. o. b. Greenville, Ala. Cash with order; March shipment. Beeland Bros. Merc. Co., Greenville, Ala.

CORN

Genuine Tennessee Red Cob and Looney Seed Corn, U. S. inspected. Good as the best. $3.00 bu. W. W. Johnson, New Market, Ala.

When Corn is King, it sure is Hickory King. "The world's poor land corn." I offer selected seed stock. Per peck $1.00; per bushel $3.50, f. o. b. shipping point. Chas. F. Grossmann, R. F. D. 3, Petersburg, Va.

Mosby's Old Reliable detasseled field selected, two remarkable large sound ears, long thick grain, small white cob; guaranteed as usual. Postpaid: ear 15c; peck $1.15; ½ bu. $2.10; bu. $3.90. Not postpaid, peck 80c; ½ bu. $1.40; bu. $2.65; 2 bu. $5.00. N. A. Kinrey, Mebane, N. C.

Pedigreed Reid's White Dent.—Wonderfully sound and resistant to storm, disease, drouth and insects. Two deep-grained ears, small cob, small sinewy stalk, perfect root system. Highest economical yield. First in three states. Sweepstakes Ohio State Fair. Booklet, "How Bred," free. Bushel $3.50; two bushels $6.00. Satisfaction guaranteed. Reid Bros., Henderson, Tenn.

COTTON

Half and Half.—Booklet free. John M. Bligh, Decatur, Alabama.

Blue Ribbon Big Boll—Early, prize winner. W. H. Kirkwood, Benettsville, S. C.

90-day, weevil smasher cotton seed cheap. Catalogue. Sexton Plant Co., Royston, Ga.

Wanamaker's Cleveland Big Boll, $1.50 per bushel, delivered to you. Alfred Mayo, Hobucken, N. C.

Wannamaker Cleveland.—Thoroughly cleaned and graded, $1.50 per bushel. W. H. Moore, Clinton, N. C.

Early, Pedigreed, Cleveland Big Boll.—Best record, $2.50 bu.; $7.00 hundred. Ridgecrest Farm, Troutman, N. C.

Pure Wannamaker Cleveland, $1.90 bushel. Simpkin's, Perry's, King's, Cook's, Webber cheap. C. Denton, Harstelle, Ala.

Don't you need a wood splitting machine?—Read our ad in machinery column. Tom Huston Manufacturing Co., Columbus, Ga.

For Sale.—Wannamaker Cleveland Big Boll Cotton Seed.—Recleaned and pure, $1.50 per bushel, sacked. J. T. Howard Farm, Conetoe, N. C.

For Only $1.44

"The small advertisement about six dozen hens I had for sale, inserted one time, has swamped me with letters and telegrams. I could have sold 500 dozen hens in three days."

ED. L. BROWN.

Wannamaker's Pedigreed Cleveland Big Boll Cotton Seed, $1.75 per bushel; grown on my farm and cleaned on private gin. J. H. Anderson, Anderson, S. C.

Pedigreed College No. 1 Cotton Seed—Ten bushels at $2.75; to 75 bushels at $2.50; to 126 bushels at $2.25. Laredo Soys $15. Whatley's Prolific corn $3. Winterville Pure Seed Association, Winterville, Ga.

Why pay fabulous prices for big named seed? Half and Half, the earliest, also Mexican Big Boll, that made 820 lbs. lint acre 1923 on minimum amount fertilizer. $1.85 bu. N. A. Kimrey, Mebane, N. C.

Selected Cleveland Big Boll seed. Grown Cleveland County. Made bale and quarter acre. Free from all disease. None better. Five bushel lots and up, $1.65 per bushel. O. Max Gardner, Shelby, N. C.

Mexican Big Boll Cotton Seed.—Select seed from a variety that has stood the test in North Carolina's greatest cotton producing county. Price $2.00 per bushel. Holding Farm, Smithfield, Johnston County, N. C.

Rookers Cotton Seed.—Carefully separated at gin and graded; matures early, fruits heavy; made ten good bales on eight acres last season; $2 bushel. Seed for boll weevil conditions. A. G. Strickland, Stedman, N. C.

Mexican Big Boll.—The best cotton to plant under boll weevil conditions. Recommended by N. C. Experiment Station. Recleaned seed from cotton that made over bale per acre. Price $1.75 bu.; in 25 bu. lots $1.50. Broadland Farm, Rockingham, N. C.

Recleaned Cotton Seed of Highest Quality—Selected for maximum early production. We offer seed from the best big boll strains of Cook, Mexican and Cleveland. Each variety selected and grown on a separate farm and carefully ginned. These strains have led in our experiment station tests during the last few years. Write us for prices. Edgecombe Seed Breeders' Assn., Tarboro, N. C.

Wannamaker's Pedigreed Cleveland Big Boll Cotton Seed.—Strain No. 5. Prices: small lots, $3.50 per bushel; 50 bushel lots, $3.25; 100 bushel lots, $3.00. Write for pamphlet giving our breeding methods and valuable information about fighting the boll weevil. Insure yourselves of the genuine, latest improved seed by ordering direct from "the originators and breeders." Model Seed Farm, Saint Matthews, S. C.

Mexican Big Boll Cotton Seed for Sale.—Graded and recleaned. Superior fiber; staple over inch; mills giving a premium for the lint. We raised bale to acre. Averaged 32% gin turnout. Price, $2.00 per bu.; ten bu. $1.80; 30 bu. and more, $1.75. Also offer King No. 35 and the long staple breeds of Lightning Express and Webber No. 49 at only $1.50 per bu., sacked, f. o. b. Concord, N. C. Address, Home Educational Co.

Wilkinson Toole Wilt Resistant and Covington Toole Wilt Resistant leaders making largest yields and beating boll weevil. I have seed from latest improved. Give 25% better results than cheap common seed. Pure, sound, selected, true to name. Under 50 bushels $1.85 bushel. Cheaper larger quantities. Can spare limited amount 3 year stalk selection Wilkinson Toole, $2.50 bushel. G. D. Mitchell, Headland, Ala.

Cotton boll weevil won't get. To make a successful farmer, plant Mitchell's cotton, faultlessly bred up to dodge and destroy weevil. In the shortest space known it grows and blooms all over, it bolls and fruits all over, it is full and open all over. Old weevil then must starve; the young cease to increase as countless numbers perish. The squares and bolls saved, larger per year and twice as many next year. It pays to plant Mitchell's Faultless Early King Cotton. 100 lbs. seed $7. Sugar Loaf Cotton Farm, Youngsville, N. C.

GRASS

Dallis, the South's best pasture grass, 25c lb. Lambert, Darlington, Ala.

Tall Meadow Oat Grass.—Buy direct this wonderful hay and grazing crop. J. K. Ramsey, Bryant, Va.

LESPEDEZA

Best quality Lespedeza Seed, 22c lb. Lambert, Darlington, Ala.

Lespedeza Seed.—Bushel $5.00. Hightower Seed Co., Hattiesburg, Miss.

Lespedeza Seed.—Fresh panned, recleaned, no Johnson grass. Write J. L. Moore, Atoka, Tenn.

Lespedeza Seed, new crop, pan-caught, recleaned, best quality, free of obnoxious seeds, rigidly inspected, guaranteed. Get our latest prices. Lespedeza Seed Growers' Association, Inc. Calhoun City, Miss.

MELILOTUS

Sow Yellow Melilotus Now, on good soils; 15c lb. Folder free. Lambert, Darlington, Ala.

PEAS

Murphy & Palmer, Sandersville, Ga.—Field Peas, all varieties. Quotations on request.

Peas, any kind. Just drop me a card for prices. I will save you money. D. F. Moore, Jr., Brunson, S. C.

RYE

Abruzzi Rye, $1.50 per bushel, from pedigreed stock. J. H. Watson, Monetta, S. C.

TOBACCO

Adcock Tobacco Seed—Cultivated 18 years without fertilizer. Price 50 cents per ounce. Pervis Tilley, Bahama, N. C.

WATERMELONS and CANTALOUPES

Select Tom Watson Melon Seed for sale, 50c lb., any quantity. Duncan Whiddon, Tifton, Ga.

MISCELLANEOUS SEED

15 varieties guaranteed vegetable or flower seed, 16 full packets, postpaid, $1.00. Seed oats, soy beans, seed corn, low prices. S. H. Green, Continental, Ohio.

Eight thousand pounds carpet grass and six thousand lespedeza seed at 25c per pound delivered; quantity lots special price. John Whitaker, Turnbull, Miss.

Red Clover, $1000; Sweet Clover, $7.00; Alfalfa, $7.50; Alsike, $8.00; Timothy, $3.50; Sudan Grass, $2.00 per bushel, sacked; test 96 per cent. Samples free. Standard Seed Co., 141 E. 5th St., Kansas City, Mo.

Stone, Red Rock and Greater Baltimore Tomato Seed, $1.00 pound; Earliana, Globe and Redfield Beauty, $1.75 pound. Selected Watson Watermelon Seed, 40c pound, all prepaid. Omega Plant Company, Omega, Ga.

Cotton, Corn, Beans.—College No. 1 and Cleveland Piedmont Pedigreed Big Boll cotton stands head at the Georgia State College of Agriculture. We have these seed pure and sound, saved specially for planting, $2.00 per bushel. Hasting's Prolific Seed Corn, select, nubbed and tipped, $2.50 per bushel. Laredo Soy Beans, recleaned, peck $1.00; ½ bushel $7.50; bushel $14.00. Cloverdale Farm, Sandersville, Ga.

BIRDS

PHEASANTS

Ring-Necked Pheasants. Mrs. Anton Jahnke, Rt. 9, South Richmond, Va.

POULTRY AND EGGS

BABY CHICKS

Chicks—Highest quality. Lowest prices. Quality Poultry Farm, Box 208 Windsor, Mo.

Chicks.—White Leghorns a specialty. Free catalogue. Foley's Poultry Farm, Bridgewater, Va.

Baby Chicks, 9½c up. 14 pure breeds. Catalogue free. Missouri Chickeries, Box 601, Clinton, Mo.

Chicks—Leading varieties; our big illustrated chick book free. Comfort Hatchery, Box 725, Windsor, Mo.

10,000 chicks hatched weekly. At farmers' prices. Get our catalogue. Culpeper Hatcheries, D-578, Culpeper, Va.

(Classified ads. continued on next page)

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Baby Chicks—Send for our valuable free chick book and exceptional 1924 prices. Rusk Brothers, Box 112, Windsor, Mo.

Baby Chicks.—Ten leading varieties. Best quality; also eggs for hatching. Send for booklet. Golden Rule Hatchery, Bucyrus, Ohio.

Baby Chicks.—Rocks, Reds and White Leghorns, from well selected stock. Prices reasonable. Write Montezuma Hatchery, Dayton, Va.

Sturdy Barred Rock and White Leghorn Chicks from high powered egg bred parents. Catalogue. Vitality Chickery, Thorntown, Indiana.

Everlay Brown Leghorn Baby Chicks and eggs from selected hens, with male direct from Tormohlen's "special mating" pen. T. D. Birchett, Petersburg, Va.

Baby Chicks.—60,000 each week. Rocks, Reds, Leghorns. Write for prices, stating quantity you desire. Harrisonburg Hatchery, Box B-319, Harrisonburg, Va.

Bred-to-lay Barred Rocks, Reds, Leghorns. Big discount if you order now. Circular free. First hatch Feb. 18th. Brush Valley Farms, Centre Hall, Pa.

Baby Chicks—From heavy laying strains. All leading pure breeds. Low prices. Prepaid. Live delivery guaranteed. Catalog Free. Smith Bros. Hatcheries, Mexico, Mo.

The Old Reliable Uhl Hatchery.—Baby chicks, 13 varieties. Twenty-fourth season. Prepaid parcel post. Catalogue free. Uhl Hatchery, New Washington, Ohio, Box F.

Baby Chicks.—60,000 each week. Rocks, Reds, Leghorns. Write for prices, stating quantity you desire. Massanutten Farms Hatchery, Box B-331, Harrisonburg, Va.

Baby Chicks.—White Leghorns, 280 egg line. Buy from a master breeder; 15 years with Leghorns. Illustrated circular and price list free. Chesterfield Farms, Drewrys Bluff, Va.

Baby Chicks.—When buying, consider quality. Our White Leghorns, Barred Rocks and Reds are giving general satisfaction. Get our prices. M. G. Sanger & Son, Box 433, Mt. Solon, Va.

Hillpot Quality Chicks—Strong, vigorous, true to breed. Leghorns, Reds, Rocks, White Wyandottes, etc. Safe delivery guaranteed 1,200 miles. Catalog free. W. F. Hillpot, Box 70, Frenchtown, N. J.

Acme Quality Chicks.—White Leghorns, Reds, Barred Rocks, White Rocks, White Wyandottes, Minorcas, Anconas. Stock selected for vitality and egg production. Wy-Har Poultry Farm, Denton, Md.

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Eggs for hatching; baby chicks; S. C. Reds and White Leghorns, Black Langshans, Buff Orpingtons and Hamburgs. Some fancy show birds, cocks and cockerels and hens for sale. Eagle Nest Poultry Farm, Pineville, N. C.

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Strong, healthy chicks from free range flocks, selected and tested for heavy laying. Leghorns, Barred Rocks, Rhode Island Reds, Minorcas. Low prices. Prepaid. 100% live delivery guaranteed. Sanitary Hatchery, Box 100, Weimar, Texas.

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Finest Reds and Anconas to Be Found Anywhere—Chicks, 15c up. Eggs, $2 up. 20 pens of 500 selected line-bred birds assure prompt delivery. Write for descriptive circular and price list. Little Cedars Farm, High Point Road, Box 1344, Winston-Salem.

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S. C. White Minorcas.—Baby chicks a specialty. Pens made up of large frame, heavy weight birds, mated to mates from imported stock. Baby chicks 35 cents each. Eggs $3.00 per 15, postpaid. Those interested save this ad for reference. Mrs. T. M. Rosen, Buckingham, Va.

Single Comb White Leghorns—The standard laying strain. Chicks ready for delivery. 21c each; $18 per 100; $85 per 500, postage paid and live delivery guaranteed. The price is very low, quality considered. 20% books orders for future delivery. Eugene W. Brown, Rich Square, N. C.

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Purebred Ancona eggs, $2.00 a sitting. Mary L. Patteson, Manteo, Va.

Ancona cockerels, $3.00 and $5.00. Thurmon Honeycutt, Oakboro, N. C.

Choice Ancona Cockerels, $3. Bourbon tom $8. Bethel Farms, Pinehill, Ala.

Eggs from exhibition matings, $3.50, $5.00 sitting. Little Cedars Farm, Winston-Salem.

Anconas, Sheppard's direct.—World's greatest layers. Ridgeview Poultry Farm, Oakboro, N. C.

Anconas.—Layers, winners; breeders, eggs, baby chicks. P. M. Shulenberger, Landis, N. C.

S. C. Ancona eggs. Splendid layers headed by Sheppard cockerels. Annie Ligon, Farmville, Va.

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Sheppard's Ancona Cockerels, $3.00; pullets, $2.00; Baby chicks, 18c; eggs, $2.00 15. Mrs. H. E. Rufty, Salisbury, N. C.

Hatching Eggs.—Single Comb Anconas, winter egg machines. Eggs one fifty to three dollars fifteen. M. C. Johnson, Norlina, N. C.

Anconas, Sheppard's, both combs; nice cockerels $2 each; select dark wings and tails, $2.50 and $3. Pullets same price. Fitzhugh Hudson, Meherrin, Va.

Single Comb Anconas.—Hens, pullets, cockerels, $2.00 each. Hatching eggs from prize winning stock $2.00 per 15, postpaid. S. E. Adcock, Cumnock, N. C.

Single Comb Ancona Baby Chicks, Sheppard strain; $18 100, $87.50 500, $170 1,000, prepaid. Live delivery guaranteed. Order now for delivery last week in February and later delivery. Lee Poultry Farm, Anniston, Ala.

Lewallen's leading exhibition egg strain S. C. Anconas, the egg producing prize winners. Won 102 ribbons and four silver cups this season. Baby chicks, hatching eggs; prices reasonable. Write for prices. Catalogue free. Worth M. Lewallen, High Point, N. C.

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S. C. Blue Andalusians.—Fifteen eggs from our winners, $3.00. Cockerels. Charles Pond, Crewe, Va.

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Black Spanish.—Stock, eggs. A. S. Gray, Athens, Ala.

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Extra Quality Light Brahmas.—Stock; eggs; chicks. W. Halberstadt, Williamston, N. C.

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Almon Williams Buttercups.—Eggs $1.50 per 15. Stock. Mrs. Thos. Mitchell, Brevard, N. C.

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Beautiful Silver Campines and Single Comb Buff Leghorns; 15 eggs $2.00, postpaid. Luther Shelton, Letcher, Ala.

Silver Campines.—Beautiful Belgian money makers. Not a fad. Eggs from best blood lines, $1.50, $2.00, $2.50. C. W. Garrett, Rt. 13, Burlington, N. C.

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Jersey Giant Farm, Breaux Bridge, Louisiana—15 eggs delivered, $3, $5, $7.50. Catalogue free.

Jersey Black Giants, prize winners at Virginia State Fair. Eggs $5 and $3 per 15, delivered. A. G. Vernon, Madison, Va.

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White Leghorn cockerels, $2.00 each. G. W. Murray, Claremont, N. C.

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English White Leghorns.—Best layers. Eggs $1.75 per 15. L. H. Ellis, Winterville, N. C.

Young Ferris White Leghorn Chicks, $15.00 hundred. Armstrong James. Tarboro, N. C.

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Purebred S. C. White Leghorn eggs, $2.50 sitting of 15. R. O. Wilson, Mocksville, N. C.

Choice purebred S. C. Brown Leghorn eggs, $1.40 for 15, delivered. R. J. Harrell, Eure, N. C.

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S. C. White Leghorns, Ferris and Puritas Springs strains. Hens, cocks, pullets, cockerels, $2.00 to $4.00 each. William Powell, Mocksville, N. C.

White Leghorn eggs.—Laying bred in them; pen 1, $3.50 per 15; pen 2, $2.00 per 15. Hatch them off early. McClure Poultry Yards, Westminster, S. C.

S. C. White Leghorn Baby Chicks.—20,000 each week. Write for prices, stating quantity you desire. Harrisonburg Hatchery, Box B-319, Harrisonburg, Va.

We are now booking orders for Feb., March, April and May hatched S. C. White Leghorns (Wyckoff's strain). Write for prices. Bayville Farms, Lynnhaven, Va.

S. C. White Leghorn Baby Chicks.—20,000 each week. Write for prices, stating quantity you desire. Massanutten Farms Hatchery, Box B-331, Harrisonburg, Va.

Heavy Laying Pedigreed Imperial Single Comb Leghorns, world's best foundation stock. Trapnested for 18 years. Catalog free. Imperial Poultry Farm, Berea, Ohio.

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Single Comb White Leghorns. 265-300 egg Ferris strain. Will win anywhere. 15 eggs $2.00; $10.00 hundred. Baby chicks $18.00 hundred. The Tennessee Valley Poultry Farm, L. D. Cribbs, Mgr., Athens, Ala.

Gambill White Leghorn Farm.—Home of America's greatest S. C. White Leghorns. 17 years line breeding. Eggs and baby chicks from prize winners and the world's greatest layers. Price list free. J. E. Gambill, President, Petersburg, Tenn.

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A few choice cockerels and pullets from my prize winning strain of Golden Buff Orpingtons at bargain prices. A. A. McCorkle, Salisbury, N. C.

Six years experience with S. C. White Orpingtons. Pullets and hens, cockerels and cocks priced reasonable. Eggs $2 per 15 postpaid. White Indian Runner Ducks priced to sell. Elijah Bumgarner, Taylorsville, N. C.

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Anything in Thompson strain Barred Rocks cheap. Edgewood Farm, Warrens Bluff, Tenn.

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Barred Rock Cockerels (Thompson's strain) at $3.00 to $5.00; eggs $2.00 and $3.50 for 15. W. G. Foster, Jetersville, Va.

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Barred Rock Baby Chicks.—20,000 each week. Write for prices, stating quantity you desire. Massanutten Farms Hatchery, Box B-331, Harrisonburg, Va.

For Sale.—Thompson's Ringlet Rocks.—Cockerels $3.00 to $5.00; hens $2.00 to $3.00; choice cock birds $5.00 to $10.00. M. C. Hannah, Linwood, N. C.

Selected eggs from beautifully Barred Ringlets; large, hardy, heavy layers. Carefully packed and delivered free. Beechcroft Farm, Bellbuckle, Tenn.

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Buff Plymouth Rocks of merit; Silver cup, display and specials State Show. Winners at Columbia and Philadelphia. (The kind that lay eggs.) Eggs $3.00 to $5.00. W. G. Sneed, 1637 Spring Garden, Greensboro, N. C.

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Purebred Red eggs, $2.00 15; $10.00 100, prepaid. Bertha Parrott, Darlington, S. C.

Single Comb Red eggs, ten cents each by parcel post. Fairview Farm, Boonville, N. C.

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Splendid strain, early hatched, dark S. C. Red Cockerels, $3, $4 and $5. Satisfaction guaranteed. Mrs. W. R. Rich, Watha, N. C.

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30 Quality Single Comb R. I. Red hens, 8 to 18 months old, laying, $2.50 each; two grand cockerels; bunch $74.00. (Tyrrell's 250 egg strain.) D. H. Reel, Iron Station, N. C.

Reds, both combs, nineteenth year; eggs $9.00, $5.00, $3.00 per 15; $12.00 per 100. 10% discount (per 15) if booked during February. Catalogue. Mrs. J. C. Deaton, Salisbury, N. C.

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White Wyandotte eggs, $2.00 sitting. Keeler strain. M. Patrick, Rustburg, Va.

Pure Silver Wyandotte eggs, $2.10 for 15. Mrs. Henry Middleton, Warsaw, N. C.

White and Partridge Wyandotte eggs, 15 prepaid $1.25. J. A. Punch, Newton, N. C.

White Wyandottes, $2.00, 15 eggs $1.50. Mrs. George Gooden, Elizabethtown, N. C.

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Choice Buff and White Wyandottes.—Eggs for hatching. J. H. Pettit, Bostic, N. C.

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White Wyandotte eggs from blue ribbon, champion, sweepstake winners. Circular free. John E. Shepherd, Burlington, N. C.

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Large, fine, pure White Wyandotte hens, pullets, roosters. Heavy layers. Pullets $1.85; roosters $2.50; eggs $2. Beechcroft Farm, Bellbuckle, Tenn.

White Wyandotte cockerels, $5, $8 each, from winners Raleigh, Charlotte, Greensboro, Kinston, Roanoke, Va. Satisfaction guaranteed. H. B. McLean, Raeford, N. C.

Reliable Rose Comb White Wyandotte eggs from Hogan tested hens mated to cocks grandsired by Martin's Regal Sensation and Snowdrift Champion. Satisfaction guaranteed. $1.00 sitting; $5.00 hundred. 50c extra for insurance, etc. Mrs. Walter J. Danderman, Alhambra, Illinois.

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Prize winning Purebred Mammoth Toulouse Geese, $11.00 pair; $15.00 per trio. Satisfaction guaranteed. Riverside Poultry Farm, Rt. 1, Burgaw, N. C.

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Wanted—Peafowls. Mrs. Geo. A. Taylor, Monetta, S. C.

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Purebred White Holland Turkeys.—Toms $10; hens $8. Mrs. Mary Moffitt, Franklinville, N. C.

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Purebred Mammoth Bronze.—1923 toms, weighing from 25 to 28 pounds, reduced to $10; hens $7.00. Alvas Powell, Warsaw, N. C.

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Beautiful Mammoth Bronze Turkeys from prize winning breeders. Goldbank strain; sired by champion breeders. Miss Effie Boothe, Pulaski, Va.

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Fine registered Percheron Stallion for sale at bargain. J. W. Brown, Gatesville, N. C.

TWO OR MORE BREEDS

High-class purbred pigs, shoats and bred gilts at feeder prices, most remarkable value we ever offered considering quality and breeding. Big boned Poland China, O. I. C. Duroc, Spotted Poland China, Berkshire and first cross between two of above pure breeds the most profitable feeders. Two or more 8 weeks old $6 each. 50 lbs. and over $7; 80 to 100 lbs., $10. Gilts, 250 lbs. and over, bred to farrow in April, $65. 8 weeks old pigs, 25 to 40 lbs., $6 each. All stock guaranteed as represented. Bedford Stock Farms, Box 171, Lynchburg, Va.

Berkshires—Guernseys. Stone Gate Farm, Petersburg, Va.

Reg. Holstein bull, 1 year, $50.00. Purebred Duroc pigs $8.00. Pineland Stock Farm, Buckner, Va.

Pigs, Hogs!—Any breed, age, weight desired, in crates or car load lots. Satisfaction guaranteed. Francis E. Houston, Fairfield, Va.

PET STOCK

DOGS

German Stock and Police Dogs. Wildrose Kennels, Windsor, Va.

Airdale, one-half Airdale and Hound pups, males, cheap. J. F. Pollard, Greenville, N. C.

For Sale.—Pedigreed Registered White Columbian Collie pups. R. D. Young, Bandy, Va.

Purebred Fox Terrier gyp, age 3 years; weight 8 lbs.; C. O. D. $10.00. C. D. Cox, Cascade, Va.

Six male pedigreed Llewellyn Setter pups, eight weeks old. Price $25.00. Write J. H. Wells, Walhalla, S. C.

Pointer bitch, 14 months, snappy, stylish, very handsome; hunted this season; price $30.00. Dandridge Taylor, Tuggey, N. C.

For Sale.—Pair of one year old fox and opossum hounds; large size and in good health, $20.00. Elijah A. Bumgarner, Taylorsville, N. C.

For Sale.—Four nice Pointer pups, white and liver, 3 months old, $10.00 and $15.00 each. Five Walker Fox Hound pups, black and tan, 2 months old, $10 each. Several trained fox hounds, $25.00 to $40.00 each. One good rabbit hound, $25.00. Two registered Setter pups, 3 months old, $40.00 each. Clyde Morehead, Stuarts Draft, Va.

MISCELLANEOUS

Save money on your favorite candy, cigar, chewing gum, by mail. Link Brothers, Salisbury, N. C.

Glass Fabric—Used for hotbeds, cold frames, etc. Prices by mail. R. L. McKee, Newton, N. C.

Nu-Idea School Desks—Thousands sold. Save one-third. Nu-Idea School Desk Company, Darlington, South Carolina.

BEEWARE

For Sale.—Bee Hives and Bee-keepers' Supplies. Write for catalogue and special price list. Roebuck Gin Co., Roebuck, S. C.

BOOKS

Free Book.—Prophet Elijah coming before Jesus. Convincing Bible evidence. P. Megiddo Mission, Rochester, N. Y.

AUTO SUPPLIES

Automobile owners, garagemen, mechanics, send for free copy America's popular motor magazine. Contains helpful, money saving articles on repairing, overhauling, ignition, carburetors, batteries, etc. Automobile Digest, 638 Butler Bldg., Cincinnati.

HARNESS—SADDLES

For Sale—Genuine McClellan Army Saddle, brand new, with fenders $5.95. Reclaimed, $4.95. New Army Bridles, $2.45. Reclaimed bridles, $1.69. New wool army pants, $2.19. New wool coat, $1.98. Marching shoes, $2.79. Field shoes, $2.79. Hob nail shoes, $2.79. Will ship collect; allow inspection. Ask for special bargain bulletin. Friedlander Brothers, Moultrie, Ga.

HIDES

Ship hides Athens Hide Co., Athens, Ga.

Free Catalogue.—See useful articles hides and furs make. Athens Hide Co., Athens, Ga.

LUMBER WANTED

One order well seasoned pine lumber wanted. See my advertisement, page 33. Clarence Poe, Raleigh, N. C.

OF INTEREST TO WOMEN

Wanted.—Women, Girls, Learn gown making at home. Many openings, $35.00 week. Learn while earning. Sample lessons free. Write immediately. Franklin Institute, Dept. H-538, Rochester, N. Y.

PATENTS

Patents—Write to E. F. Fishburne (a South Carolinian), Registered Patent Lawyer, 382 McGill Bldg., Washington, D. C. Honorable methods.

POULTRY SUPPLIES

New Fish Scrap.—$3.25 100 lbs. Robert E. Smith, Nassawadox, Va.

For Sale.—70-egg Incubator, ("Reliable"); practically new; price $25.00. R. McGlohon, Winton, N. C.

Save money on feeds by buying from us. Low water freight rates along Eastern coast. Send for price list. W. C. House, sales manager, Blamberg Bros., Inc., 107 Commerce St., Baltimore, Md.

ROOFING

Roofing—Galvanized 5-V crimp roofing, metal shingles, rolh roofing, asphalt shingles, wallboard, nationally advertised brands: Ru-ber-oid, Flex-A-Tile, Johns-Manville. Write us for prices and samples. Rudd-Piper Roofing Co., Durham, N. C.

TOBACCO

Natural Leaf Tobacco—Chewing, 5 lbs., $1.75; 10 lbs., $3.00; 20 lbs., $5.25. Smoking, 5 lbs., $1.25; 10 lbs., $2.50; 20 lbs., $4.50. Farmers Union, Mayfield, Ky.

Leaf Tobacco.—Chewing, 5 pounds, $1.75; ten, $3.00. Smoking, 5 pounds, $1.25; ten, $2.00. Pipe and recipe free; pay when received. Cooperative Farmers, Paducah, Ky.

Homespun Tobacco—Five pounds chewing, $1.75; ten, $3; twenty, $5.25. Smoking, five pounds, $1.25; ten, $2; twenty, $3.50. Pipe and recipe free. Send no money. Pay when received. Kentucky Tobacco Co., Paducah, Ky.

BUY OR EXCHANGE

To buy one horse mower. F. D. Hunter, Simpsonville, S. C.

Wanted.—Clover and Peavine Hay. R. E. Johnson, Gastonia, N. C.

PUREBRED BABY CHICKS

PRODUCTION BRED

BABY CHICKS!

Genuine Tancred Strain S. C. White Leghorns

America's greatest layers. This strain holds highest OFFICIAL records in this country. Bred, trapnested and pedigreed nineteen years for HIGH AVERAGE FLOCK production. We offer chicks with blood of America's greatest layers in their veins. We are breeders, not a commercial hatchery, and only sell chicks hatched from eggs produced on our farm. Every chick sired by pedigreed Tancred male of KNOWN HEAVY LAYING ancestry. Our prices are very low for chicks of this breeding and quality. Chicks $20 to $40 per hundred. A hatch each Tuesday. You can order from ad with safety. Live delivery and satisfaction guaranteed. References: First National Bank, Dunn, N. C.; A. G. Oliver, Extension Poultryman, Raleigh, N. C.

SEND FOR FREE CATALOG

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PALMER CHICKS The Chicks with a LIVING Reputation.

With over 25 years experience as breeder and national poultry judge, I guarantee every chick I sell is pure-bred, from healthy, winter-laying stock, mated by myself. Get our reasonable prices and helpful FREE catalog. Order chicks NOW! 1000 live delivery a good condition guaranteed first. The editor of any poultry magazine in America. Russell F. Palmer, The PALMER HATCHERY, 103 Broadway, Shelbyville, Tenn.

Chicks From Prize Winners!

Every flock is carefully bred for highest type and heavy egg production. Birds from our flocks have won in some of the largest shows. All popular breeds with special attention to Hollywood and English Leghorns. Pure-bred, of course. Write for catalog. You will be pleased. NONE-SUCH POULTRY FARM, Box 332-F, Mt. Vernon, Ohio.

PUREBRED POULTRY

ANCONAS

My Famous Ancona Biddy

One "Famous" Ancona laid 339 eggs a year. Won over 80% of first and second prizes at Madison Square Garden Show for 17 years. Beautiful! Heavy layers! Prize winners! Free 160-page Ancona book mailed on request.

H. C. Sheppard, Bx 539, Berea, O.

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Trapnested S. C. White Leghorns

Records up to 272 eggs, mated to sons of 250 egg hens and better, brothers to Champion pen Illinois Laying Contests and Champion hen 306 eggs. If it's quality you want, we have it.

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Route 1, Box 60, Hampton, Va.

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Single Comb White Leghorns

(Young's Strain)

110,000 vigorous, strong, hatched baby chicks for 1924, from select range reared breeders. Before you place your orders don't fail to get my prices. Free, handsome descriptive 1924 catalogue. One of the South's pioneer shippers of day-old chicks. North Carolina's oldest and largest producer of White Leghorn baby chicks. Modern plant; thirteenth season.

CARL GILLILAND, Siler City, N. C.

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The beautiful business hen! Wonderful winter layers. Big white eggs. World Record layers American Egg Contest! Greatest winners New York-Chicago. Hardy, vigorous money makers. Stock $25. shipped safely. Catalog free.

EVERLAY FARMS Box 17. Portland, Ind.

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Chickens, Ducks, Geese, Turkeys

66 BREEDS—Fine Purebred Chickens, Ducks, Geese, Turkeys, Fowls, Eggs at low prices. America's finest poultry farm. 10,000 prizes. Large poultry book and price list, 5c.

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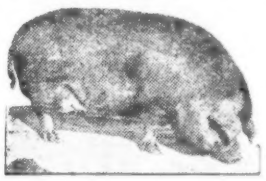
WEBER'S BEST laying, BEST paying chickens, ducks, geese & turkeys. Fine pure-bred quality. Fowls, Eggs. Incubators at new low prices. 42 years poultry experience, and my 100 page Catalog and Breeders' Guide Free. W. A. Weber, Box 95, Mankato, Minn.

PUREBRED LIVESTOCK

JORDAN DUROC FARM

Home of Champion Durocs



Leading herd of the Carolinas, since 1910. We sold more Durocs during 1923 than any year in history. Bred gilts in our Fall sale averaged within a few dollars of the top sale of America. "Jordan-Bred Durocs" are in demand, "There's a Reason," they prove profitable. When in the market for this kind, visit the farm or write your wants. Right now, we offer a limited number bred gilts at $65 and up. Fall pigs at $25 and up. Spring yearling boars, sons of Ultimus (the last chance) at $75 to $250.

KIRBY F. JORDAN, McCullers, N. C.

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REYNOLDA, Inc. REYNOLDA, N. C.

"The North Carolina Show Herd"

We are offering a few sons of Imported Raleigh's Noble Boy No. 197656, ranging in age from three to six months, out of imported and Register of Merit dams, at $100 each, crated and transferred. These calves have all the breeding and quality necessary to add production to your herd and to win for you in the show ring. Write us, or wire us would be better.

A. C. WHARTON, Manager H. L. WARFIELD, Jersey Dept.

DUROC-JERSEYS

— Big, Prize Winning Durocs —

Champion breeding. Scissors and Sensation blood lines. Extra nice Service Boars. Bred and Open Sows and Gilts. A part of my show herd. Pigs now ready. If you want the best in Durocs, write

A. C. RHODES, NORTH RIVER, VA.

HAMPSHIRES

HOGS —HAMPSHIRE —HOGS

We are offering breeding stock of same bloodlines that we won all Grand Champions at Richmond, Atlanta and Columbia, and Junior, Senior and Grand Champion sows at North Carolina State Fair.

BRED and OPEN GILTS, SOWS and SERVICE BOARS for sale at reasonable prices.

GLENVIEW FARM

ZENE G. HADLEY, WILMINGTON, OHIO.

HAMPSHIRE HOGS

ALSO

HAMPSHIRE PIGS

Prices On Request

HAZELHURST FARM, Forest City, N. C.

HAMPSHIRES — HAMPSHIRES

Lookout, Cherokee and Messenger blood lines. Service boars, bred sows and gilts; fall pigs; all of prize winning and champion blood. Satisfaction guaranteed. Price reasonable.

W. H. Damren, Brookside Farm, Shelbyville, Tenn.

O. I. C.'s

O. I. C. HOGS ON TIME

WRITE ORIGINATORS AND MOST EXTENSIVE BREEDERS

THE L. B. SILVER CO., R.58 Salem, O.

O. I. C's. Pure-bred O. I. C. pigs of the highest breeding ready for shipment. Pairs no akin. Service boars, bred gilts and sows. I have pleased customers from Vermont to Ind. and in every State in the South, and will please you.

W. I. OWEN, Bedford, Va.

POLAND-CHINAS

Poland Chinas — Pigs and Gilts

Ready to ship.

Of the big 1,000-lb. class. BEST BLOOD IN THE UNITED STATES. Satisfaction guaranteed.

H. P. CHEEK, Route 9, LEWISBURG, TENN.

POLAND-CHINAS

Gold Standard Farm POLANDS

Make good. Ask the man that owns one. The herd carries the blood of Liberator, Giant Buster, Harrison's Big Bob and Peter Pan. Am offering 15 wonderful fall yearlings, 10 choice spring gilts and a few tried sows bred to three of the greatest show and breeding boars in the South. Visit the farm or write me your wants.

T. C. Moss, Gold Standard Farm St. Matthews, S. C.

GUERNSEYS

GUERNSEYS!

FOR THE SOUTHERN STATES!

Guernsey products sell for more than the price of ordinary milk and cream, because of their superior color and flavor. That is why Southern Guernsey breeders are making good profits from their Guernseys.

THE QUALITY-QUANTITY BREED

For information write to

THE AMERICAN GUERNSEY CATTLE CLUB, Box PF-103 Peterboro, N. H.

HOLSTEINS

— Hollins Herd (Accredited) —

All cows have yearly records. A. R. S. O. testing continuously for many years. King Bess-Ormsby breeding.

JOS. A. TURNER, Manager, Department F, Hollins College, Virginia

SHORTHORNS

SHORTHORNS

THE FARMER'S CATTLE

THE FARMERS CATTLE

SHORTHORN COWS are profitable milkers and their calves grow into steers that make rapid gains in the feed lot and dress out a high percentage at the market. For information, write

AMERICAN SHORTHORN BREEDERS' ASS'N., 13 Dexter Park Ave., Chicago, Illinois.

Tramp labor or skilled help?

Success in farming demands that you weigh these facts

HARD working dirt farmers could make an apparent saving per gallon by hiring "cheap" oils. But hiring oils that are unable to do a really good lubricating job is as foolish as substituting shiftless tramp labor for steady capable help.

The motor lubricated by Gargoyle Mobiloil actually does accomplish more, just as you accomplish more when assisted by a capable farm hand. These facts show you why:

(1) *Your motor is entitled to a lubricant produced especially for its needs*

Gargoyle Mobiloil is made from crude oils, selected, not for their gasolene yield, but for their *lubricating* qualities and refined by processes that sacrifice everything to obtain the highest possible *lubricating* value.

Wouldn't you get better service from a wagon made of selected and thoroughly seasoned wood than from a wagon made of lumber yard leftovers?

(2) *No motor can adjust itself to different oil bodies*

Day in and day out, Mobiloil gives a standard service, eliminating costly delays and lay-ups that result from the use of variable lubricants. Every batch of Mobiloil is refined, filtered and carefully tested before it is sold. Examine 5 separate gallons of the same grade of Mobiloil, bought at different places and at different times. You will find no difference in body or characteristics.

Yet 5 separate gallons of cheap oil may differ almost as much in characteristics and ability, as 5 different tramp laborers. One single batch of poor oil may cause serious trouble in your engine.

(3) *Experience first!*

Aren't you always safer in the hands of a specialist? For more than 58 years the Vacuum Oil Company has specialized solely in lubrication. That is why Gargoyle Mobiloil is superior. That is why the Chart is the accepted scientific guide to correct lubrication. And that is why 465 automotive manufacturers approve the advice of the Vacuum Oil Board of Engineers.

The Chart is shown here in part. If your automobile is not listed in this partial chart, see the complete Chart which hangs on the dealer's walls. Or write our nearest Branch for our booklet "Correct Lubrication."

(Abbreviated Edition)

THE correct grades of Gargoyle Mobiloil for engine lubrication of both passenger and commercial cars are specified in the Chart below.

How to Read the Chart:

A means Gargoyle Mobiloil "A"
B means Gargoyle Mobiloil "B"
BB means Gargoyle Mobiloil "BB"
E means Gargoyle Mobiloil "E"
Arc means Gargoyle Mobiloil Arctic

Where different grades are recommended for summer and winter use, the winter recommendation should be followed during the entire period when freezing temperatures may be experienced.

This Chart of Recommendations is compiled by the Vacuum Oil Company's Board of Automotive Engineers, and represents our professional advice on correct automobile lubrication.

NAMES OF AUTOMOBILES AND MOTOR TRUCKS	1924		1923		1922		1921		1920	
	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter
Amer. La France (Mod. 19)	B	A	B	A	B	A	B	A	B	A
" All Other Models	A	A	A	A	A	A	A	A	A	A
American Six	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Anderson	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Apperson (6 cyl.)	A	Arc	A	Arc						
" (8 cyl.)	A	A	A	A	A	A	A	A	A	A
Atlas	A	A	A	A	A	Arc	A	Arc	A	Arc
Auburn (Mod. 6-66)	A	Arc	A	Arc						
" All Other Models	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Autocar	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Buick	A	Arc	A	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Cadillac	A	Arc	A	A	A	A	A	A	A	A
Case	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Chalmers	A	Arc	A	A	A	A	A	A	A	A
Chandler Six	A	Arc	A	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Checker Cab	A	A	A	A						
Chevrolet (Mod. FB & T)					A	Arc	A	Arc	A	Arc
" (Superior)	Arc	Arc	Arc	Arc						
" (Mod. 490)					Arc	Arc	Arc	Arc	Arc	Arc
" All Other Models	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Cleveland	A	A	A	A	A	Arc	A	Arc	A	Arc
Cole	A	A	A	A	A	A	A	A	A	A
Columbia (Det.) Cont. Eng.	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
" All Other Models					A	Arc	A	Arc		
Cunningham	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	A	A
Davis	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Dodge Brothers	A	Arc	A	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Dorris (6 cyl.)	A	A	A	A	A	A	A	A	A	A
" All Other Models	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Dort	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Duesenberg	A	Arc	A	Arc	A	Arc	A	Arc		
Elcar (4 cyl.)	A	A	A	A	A	Arc	A	Arc	A	Arc
" (6 cyl.)	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Federal (Mod. X-2)	A	A	A	A	A	A				
" All Other Models	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Flint	Arc	Arc	Arc	Arc						
Ford	E	E	E	E	E	E	E	E	E	E
Four Wheel Drive (FWD)	A	A	A	A	A	A	A	A	A	A
Franklin	BB	BB	BB	BB	BB	BB	A	A	A	A
Gardner	A	A	A	A	A	Arc	A	Arc	A	Arc
Gartord (1½-1½ ton)	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
" All Other Models	A	A	A	A	A	A	A	A	A	A
G. M. C. (Cont. Eng.)							Arc	Arc	Arc	Arc
" All Other Models	B	A	B	A	B	A	B	A		
Grafton Brothers	A	Arc	A	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Gray	Arc	Arc	Arc	Arc	Arc	Arc				
Hanson Six	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Haynes (6 cyl.)	A	A	Arc	A	Arc	A	Arc	A	Arc	A
" (12 cyl.)							A	A	A	A
H C S	A	A	A	A	A	A	A	A	A	A
Hudson Super Six	A	Arc	A	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Hupmobile	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
International	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Jewett	A	Arc	A	Arc	A	Arc	A	A		
Jordan	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Kelly-Springfield	A	A	A	A	A	A	A	A	A	A
Kissel	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Kline	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Lafayette	A	Arc	A	A	A	A	A	A	A	A
Lexington (Cont. Eng.)							Arc	Arc	Arc	Arc
" All Other Models	Arc	Arc	A	A	A	A	A	A		
Liberty	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Lincoln	A	A	A	A	A	A				
Locomobile	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Maccar (1½ ton L2)			Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
" (2 ton)	A	A	Arc	Arc	Arc	Arc				
" (3 ton H2)			Arc	Arc	Arc	Arc				
" (3½, 2½ & 3½ ton)							Arc	Arc	Arc	Arc
" (4 ton M3)			Arc	Arc						
" All Other Models	A	A	A	A	A	A	A	A	A	A
Mack	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Marmon	A	A	A	A	A	A	A	A	A	A
Mason	A	A	A	A						
Maxwell	A	Arc	A	Arc	A	Arc	Arc	Arc	Arc	Arc
" (Com'l)					Arc	Arc	Arc	Arc	Arc	Arc
McFarlan	A	A	A	A	A	A	A	A	A	A
McLaughlin Buick (Can.)	A	Arc	A	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Mercer	A	A	A	A	A	A	A	A	A	A
Nash (Cer'l) (Quad.)					A	A	A	A	A	A
" (Com'l) (1 & 2 ton)	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
" All Other Models	Arc	Arc	Arc	Arc	Arc	Arc	Arc	A	Arc	
National (Ind.) (Mod. 6-31)			A	Arc						
" " (Mod. 6-51)			Arc	Arc						
" All Other Models	A	A	A	A	A	A	A	A	A	A
Oakland	A	A	A	A	A	A	A	A	A	A
Oldsmobile (6 cyl.)			A	Arc	A	Arc	A	Arc	A	Arc
" (Mod. 30)	A	Arc								
" All Other Models			A	A	A	A	A	A	A	A
Overland	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Packard Eight	A	Arc	A	Arc						
" All Other Models	A	A	A	A	A	A	A	A	A	A
Paige (Cont. Eng.)	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
" (Com'l)			A	A	A	A	A	A	A	A
" All Other Models					A	Arc	A	Arc	A	Arc
Peerless (8 cyl.)	A	Arc	A	A	A	A	A	A	A	A
Pennant Taxi-Cab	A	A								
Pierce Arrow (2 ton)	A	A	A	A	A	A	A	Arc	Arc	
" All Other Models	A	A	A	A	A	A	A	A	A	A
Premier	A	A	A	A	A	A	A	A		
Premier Taxi-Cab	A	A	A	A						
Princeton	A	A	A	A						
R & V Knight	BB	A	BB	A	BB	A	B	A	B	A
Reo	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Republic (¾ ton)			A	Arc	A	Arc	A	Arc		
" (1¾ ton)	A	A	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
" (2½ ton Mod. 19W)			A	A						
" All Other Models	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Rickenbacker	Arc	Arc	Arc	Arc	Arc	Arc				
Rolls Royce	A	A	A	A	B	A	B	A		
Star	Arc	Arc	Arc	Arc						
Stearns Knight	B	A	B	A	B	A	B	A	B	A
Stephens Six	A	A	A	A	A	A	A	A	A	A
Stewart (N.Y.) (¾ ton)			A	A	A	A	A	Arc	A	Arc
" (1 ton)	A	A	A	A	A	A	A	A	A	A
" (Mod. 7X & 10X)	A	A	A	A	A	A	A	A	A	A
" All Other Models	A	A	A	A	Arc	Arc	Arc	Arc	Arc	Arc
Studebaker	A	Arc	A	Arc	A	Arc	A	Arc	A	Arc
Stutz (4 cyl.)	A	A	A	A	A	A	A	A	A	A
" (6 cyl.)	A	A	A	Arc						
Velie (Cont. Eng.)			Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
" All Other Models	A	A	A	A	A	Arc	A	Arc	A	Arc
Westcott (Mod. D-48)	A	Arc	A	Arc	Arc	Arc	A	A		
" (Mod. 60)	A	A								
" All Other Models	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
White (Mod. 15 & 20)	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
" All Other Models	A	A	A	A	A	A	A	A	A	A
Willys Knight	B	Arc	A	B	B	A	B	A	B	A
Winton	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc	Arc
Yellow Cab	Arc	Arc	Arc	Arc	Arc	Arc	Arc			

Transmission and Differential:
For their correct lubrication, use Gargoyle Mobiloil "C," "CC" or Mobilubricant as recommended by complete Chart available at all dealers.

Address our nearest branch:

New York (*Main Office*)
Philadelphia
Indianapolis
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Chicago
St. Louis
Minneapolis
Pittsburgh
Kansas City, Mo.
Dallas
Oklahoma City

GARGOYLE

Mobiloil

Make the chart your guide

TRACTOR Lubrication

The correct engine lubricant for the Fordson Tractor is Gargoyle Mobiloil "BB" in summer and Gargoyle Mobiloil "A" in winter. The correct oil for all other tractors is specified in our Chart. Ask for it at your dealer's.

VACUUM OIL COMPANY